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MEDICINE AND THE MIND

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MEDICINE AND THE MIND

(*LA MÉDECINE DE L'ESPRIT*)

TRANSLATED FROM THE FRENCH

OF

DR. MAURICE DE FLEURY

BY

STACY B. COLLINS, M.D.
(U.S.A.)

WITH FOURTEEN FIGURES AND DIAGRAMS

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TRANSLATOR'S PREFACE

The scientific value of the work now presented to the English reader has been already acknowledged by every thinking man who has studied it in the original and is officially recognized by the act of the French Academy.

Dr. Maurice de Fleury makes us his debtor for a distinct step in advance in the necessarily slow progress of knowledge. Not only has he turned thought in a new direction on the subjects treated of in his book, but he has given us facts of great value, and has done us the inestimable good of bringing us nearer to the Truth. The tendency of those who search after the keys of mental action and the secrets of the soul has been, from the earliest ages, to regard the spirit as distinct and separate from the body. The ascetics treated the latter as a foe and an obstruction, to be repulsed, thrust aside, and starved down; later philosophers, less affected by religious bias, have acted more tenderly. Nevertheless, speaking generally, they have continued to regard the body as the shell or case of the *Ego*, but as forming no part of it.

Dr. Fleury teaches the reverse of this. He does not, indeed, attempt to define the soul, and he acknowledges that there may be more beyond; but he shows us how a

man's mind, and therefore his actions, may be directed by the mere mechanical pressure of his blood and regulated by the force of that pressure. Others have, in a vague way, guessed at this connection between bodily organs and the mental or moral forces; but Dr. Fleury is perhaps the first to define the doctrine, to demonstrate its scientific basis, to enounce and explain it clearly.

I confess there is to me something sad in this apparent materialization of things in their nature spiritual. But we must remember two facts. In science, at all events, truth is supreme; and, the sincere student must be always willing to search for it and to yield to it. But, secondly, nothing is certain until the last word is said, the last question answered; therefore we can always accept scientific truth, but accept it whispering—To-morrow we may know more! Who can say that we may not sometime know the soul, the basis of all that lifts us above the brutes, separate and distinct from the action of the brain? The author frankly acknowledges that the *something* so difficult to limit or define may have existence outside the region of his facts: on our part let us recognize that we are deeply indebted to him for having proved to us that much of our morality or immorality, of passion or of control, is strictly the result of measurable physical conditions, for thereby he gives us a fresh way of access to scientific truth.

The study of Dr. Fleury's work has made me realize the extreme importance of this subject, which is not to be confined by narrow medical bounds. As a teacher of legal medicine, I perceive a wide field of usefulness for those discoveries—in all the professions, to all rulers of men.

In family life they are destined as I believe to exercise an important influence, and as one branch of science grasps the hand of another, these discoveries increase the value and just appreciation of the new serum treatment ; indeed, the student is confronted, not merely by a new remedy, but by a new thing to treat.

If I may mention a minor point, the author, to my mind, hardly gives sufficient attention in the admirable chapter in the treatment of anger to a white, as differing from a red anger—distinct types which every Anglo-Saxon must have seen. A scientific answer to that old question as to which kind of rage is the more dangerous, and, indeed, how they differ in other respects besides the colour of the face, would be valuable.

STACY B. COLLINS.

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MEDICINE AND THE MIND

THE FIRST PART.

OF CERTAIN IDEAS ENTERTAINED BY DOCTORS.

CHAPTER I.

THE TEACHING OF LA SALPÊTRIÈRE.

Charcot and hypnotism—The phenomenon called hallucination—Dreams in the case of hysterical persons—Trials for sorcery—The trial of Lieutenant La Roncière Le Noury in 1834—Hypnotizers—The psychological, juridical, and historic interest of the ascertained facts—Satanism—The working of spells by means of waxen images—Telepathy—Fascination—The miraculous.

During the lifetime of Charcot, the widely spread renown of his studies in hysteria and somnambulism led several persons—some really desirous of instruction, others moved merely by curiosity—to ask me whether it would be possible to gain admittance even once to the classes and experiments at La Salpêtrière. It was difficult to obtain permission unless the applicant was in some way connected with the profession of medicine. The reasons for such a restriction may as well be stated here.

Researches like those made by Charcot, of a nature so novel that they threaten to overthrow more than one notion in philosophy, in history, and in jurisprudence, are calculated to disturb, without greatly enlightening, minds which have not been sufficiently prepared by the previous training of a sound technical education. In every new science the doubtful facts are difficult to distinguish from the certain; and the inconsiderate haste with which very recently acquired knowledge is imparted to the world at large is one of the great evils of our time.

The "general public," as we call the mass of persons who, only the day before, were entirely ignorant of all that they are about to be told in a hurry, is at first startled, and then, being attracted by the charm of strangeness and novelty, it rushes, not to the simplest and most clearly demonstrated problems, but far more eagerly to the most mysterious and marvellous. It grows tired and impatient of methodical and deliberate processes; it must have the solutions it desires at once. The classes of Professor Charcot would have proved disappointing to that public.

Our eminent and lamented master was enabled to procure a successful result from studies at which wise men had smiled until his time came, and to extract rich ore from that dark mine wherein so many treasure-seekers had previously gone astray, by the rare courage with which he discarded everything that he felt to be inaccessible for the moment, leaving it to the heirs of his actual discoveries, the savants of the future. He took the simplest facts, the easiest to observe; he rejected all the

others, and in everything proceeded with extreme slowness and precaution, thus proving that he loved truth, contrariwise to those who prefer mystery, and that he possessed the precious gift of patience. There are many who say this is a narrow method, and likely to make those who adopt it unjust towards bolder attempts; it is an egoistic method perhaps, but the fittest to procure the sense of security for one's self and to impart it to others.

Charcot had more than one motive for excluding the public from his lecture amphitheatre. Besides the moral impropriety of exhibiting, so to speak, patients who are also paupers, it is right to say frankly that hysteria is not inoffensive. It is not, indeed, indecent, and the word has definitely lost its vulgar signification; on the contrary, it is proven that the majority of sufferers from hysteria have an aversion to sexual relations. But fits of hysterics and the general state of nervousness are, most assuredly, bad examples to be studied from any but the physician's point of view. We are all more or less disposed to be "nervous," and this is not a note of "modernity," for Sydenham, the "father" of laudanum, a learned practitioner in the seventeenth century, asserts in his writings that one half of the male sex and nearly all women are hysterical. He exaggerated a good deal, unless the people of the court of King Charles II. were less well balanced than we. But the true proportion is still considerable, and the admission to a *cours* by Charcot of curious visitors not "to the manner" trained, might probably have obliged the assistants to desert the platform and their master in order to go to the aid of fair spectators in fits of hysterics.

No risk, however, can attend reading upon the matter, and some facts of general interest may be selected, so as, without unduly disturbing minds quite unprepared for them, to contribute to the formation of a correct idea of the bearing and the importance of the curious researches that have brought us to the understanding of so many obscure things, and have contributed so largely to bring some great minds to maturity. At the present time, the items of information positively acquired on this subject form a sufficiently complete whole to enable the teaching of La Salpêtrière to be subjected to co-ordination and synthesis, to be, so to speak, fair-copied. This has been done by Dr. Gilles de la Tourette, formerly assistant at the hospitals and "Chef de Clinique" to Charcot, and his *Traité clinique et thérapeutique de l'hystérie*,[1] with "*Les Leçons cliniques sur l'hypnotisme*," by Professor Pitres, Dean of the Faculty of Medicine at Bordeaux, contain, I think, all that is most instructive on the whole subject. These works are written for specialists, but I propose to select certain views of the phenomenon of hallucination from them with a more general purpose.

2.

The public possesses no information respecting this phenomenon beyond the vague statements conveyed by the press, or by certain modern novels, immoral beyond description, not only in the scenes which they narrate, but in the insufficiency of their documentary and other evidence and their pretensions to teaching. For, does not

[1] Plon; 3 vols., 1895.

the immorality of a thing written reside, above all, in the alteration of truth ?

What is to be observed at the bedside of patients suffering from hallucination is as follows :—

Almost always, so soon as the nervous attack, marked by convulsive movements and screaming, is ended, the hysterical patient begins to rave. He imagines himself, with great intensity and perfect sincerity in the hallucination, seeing once more and living over again some impressive, mark-leaving scene of his past life. In the Middle Ages, and even up to the last century, the education of the time was solely religious; angels and demons played a great part in these ravings, for the sick souls were almost all tormented by the conflict between good and evil spirits.

At the present day almost every girl of the lower classes who is taken into the hospitals is beset by the idea of a lover who has cruelly forsaken her. The ravings of these patients are mournfully sentimental rather than mystic; but they follow, absolutely and rigorously, the same phases of hallucination as in the far-distant period when the devil Isaacason came to tempt Madame de Belciel. A precise example will make my meaning more clear.

One of the girls in the charge of Charcot had her first nervous attack at sixteen, after the destruction of her father's house by fire; shortly afterwards, at a theatre, where *Le Tour du Monde en quatre-vingts jours*, taken from the romance by M. Jules Verne, was played, she had a second attack during the exciting scene of the serpents invading the stage and twining themselves about two fair

travellers. She became completely hysterical when her betrothed left her for another. Ultimately, she had at least two attacks daily, followed by delirium, and her ravings always took the same form; the fire, the serpents' cave, the scene of her false lover forsaking her, recurred invariably in the selfsame order, the state of hallucination being so complete that the patient imagined herself to be in each of these, absolutely. Breathless with horror, and with eyes shut fast and arms thrust out in front of her to drive them away, she related those frightful visions, depicting them in vivid colours with startling effect. Then she awoke, once more like you or me. Thus it is with them all. Their hallucinations are evolved according to certain laws, of which the following are the chief:—

1. The hallucination is perfect, the illusion absolute; the hysterical person experiences it with the intensity of a real thing, and the account she gives of it is perfectly truthful.

2. The matters she relates are not, properly speaking, inventions of her mind, but recollections, amplified, dramatized, always bearing reference to some actual fact which has happened previously.

3. The vision is not motionless in general. It appears on the right or the left, according as the patient has partial anæsthesia on the right or on the left (hysterical subjects are usually insensitive on one half of the body); it advances and vanishes at the moment when it faces the patient.

This threefold peculiarity contributes largely to lend greater precision, vivacity, and apparent veracity to the accounts of their hallucinations which are given by hyster-

ical persons. We know, besides, that in cases of hypnotic sleep it is easy to suggest hallucinations of one or other of the senses to the sleeper. He can be made to see flowers, inhale perfumes, taste sweets or salt, hear words, and touch imaginary objects. In this state the hysterical subject, being deprived for the moment of personal will, submits, like molten wax, to the impression imposed upon her by a strange will, and imagines that she veritably and indeed sees, hears, smells, tastes, and touches everything that is mentioned. She always describes her hallucination in such fluent and precise terms, and in such detail, that one would take it for truth itself.

Thus we have acquired the primary fact that the state of hallucination may produce itself, being suggested by the recollection of a real scene of past life, or may be imposed by the will of another. All this is well known to many of my readers, and I mention it only in order that I may be more easily understood in the later explanation of these curiosities of pathological experience. But now I come to something less ordinary and more worthy of close attention.

Sometimes also, at night, the hysterical subject may suggest to herself, in ordinary sleep, and under the mere impulse of a dream—dreams play a great part in these lives—hallucinations so intense that the remembrance of them remains after waking, like that of a thing which has actually happened. Here the question assumes sufficient novel interest to deserve some treatment in detail. At La Salpêtrière, the patients, who are always either falling in love suddenly with the students on duty, or vehemently hating them for the length of a day, frequently

dream of one or another among the number. The next morning on awaking they accuse the assistant, or it may be the professor in person, of having come to violate them. In such a case nothing is easier than to establish the falsehood of the statement. But let us suppose a different place and surroundings, the absence of witnesses, the accused person being totally unable to prove an alibi, and we shall perceive the possible consequences, since the accusation is always brought against the imaginary offender in perfect sincerity, in the tone of simple truth, and with an abundance of precise details which might take in anybody, even the toughest of the "juges d'instruction."

"But," it will be said, "a criminal assault leaves traces; there are signs of a struggle." Ah, but that makes no difference. The following examples are not anecdotes invented to support the cause, but medical "observations," carefully collected and scrupulously examined by savants, who make very careful choice of their documents. After having related these, we shall compare them with certain facts recorded in history, and I think we shall find that some new light will result from that proceeding.

Mme. X., a young woman who was well known to be "nervous," had met during the day M. *Z.*, a person whom she hardly knew. The circumstance in itself was entirely unimportant, but she dreamed of it on the following night, as it has occurred to us all to dream of a trifling event of recent occurrence. She dreamed that M. *Z.* had pursued her along a road where she was walking; she had run with all her speed and for a

long time; at length, being utterly exhausted, she had flung herself into a ditch and broken both her legs. The next morning Mme. X. awoke, bruised, and absolutely incapable of moving her legs. She stated, with entire conviction and good faith, that M. *Z.*, in pursuing her, had caused her to stumble, and this had caused the fracture. The patient was examined: her legs were not broken, but they were paralyzed, and the state of paralysis lasted for six months. A mere dream can therefore leave material traces after it, lasting proofs, which may produce the convincing effect of an authentic narrative.

But here is something worse still. An hysterical patient has passed the night in her bed as peacefully as possible. Her neighbours in the ward, the attendants on duty, who have not lost sight of her, are there to attest the fact; nothing apparent has troubled her sleep. On awaking, she declares in great agitation that a person, whom she names, has outraged her during the night. Those present try to make her understand that she has been frightened by a dream, but she asserts that she has been hurt, and she shows unmistakable bruises, brown spots of extravasated blood—examples of veritable and undeniable echymosis. Now—a thing incredible at first sight, but clearly demonstrated—these echymoses have come spontaneously, solely under the influence of suggestion by dream, and this material testimony is born of imagination. It is nothing but a local disturbance of the sanguineous circulation, as the following conclusive experiment, which has repeatedly been tried at La Salpêtrière, proves beyond dispute. Place a bit of gummed paper, a harmless postage stamp for instance, on the

hand of an hysterical patient, surround it with a thick dressing, carefully sealing it with wax and a seal, so that it cannot be touched. Inform the patient that a blister has been put upon her hand, and when you remove the dressing, the usual time having expired, suggestion will have sufficed to produce the effect of a real vesicatory, a blister of raised epidermis, full of water, a "phlyctæna," as we say. Echymoses and phlyctænæ are phenomena of the same order, disturbances of the local circulation capable of being produced under the influence of mere suggestion, whether caused by a dream or invoked by another person. And the mechanism of these disturbances is very simple; it is a momentary paralysis of the vasomotor nerves. A distressing hallucination, an imaginary drama may leave material traces of their passage, actual lesions. Dream can create reality.

Not only is this an extremely curious fact, but it implies an addition to our knowledge which involves practical consequences in jurisprudence. An innocent person may be condemned on the entirely sincere and seemingly true denunciation of a person suffering from hallucination. Happily, cases of this sort are not frequent in the modern world. But, if we go back to past ages, we may find the probable explanation of a multitude of small historic facts which were for a long time mysterious in the actual elucidation of these phenomena that has been arrived at recently.

3.

On re-perusing the old trials of sorcerers and persons possessed by the devil, an impartial mind cannot fail to

be struck by the faculty of observation, solicitude for truth, and scrupulous carefulness in noting the smallest details that were expressed by the inquisitors and judges.

These men, whose pitiless severity is easy to explain if we remember that they believed themselves to be dealing with the devil, the enemy of mankind, but whose memory is detested for the torments they inflicted, approached the investigation of the facts submitted to their jurisdiction with incontestable honesty, and conducted it with the minutest care and painstaking. In the records of those old trials, all the phenomena noted at La Salpêtrière are to be found. No detail, however small, escaped these men ; they have written unawares an almost complete history of neuropathy, so that indeed it has been said with some reason that since the times of Laubardemont nothing has been changed in the science of hysteria, unless it be the interpretation of the symptoms and their treatment : water in place of fire, the douche in place of the stake.

In the work of M. Gilles de la Tourette, which is very rich in interesting historical documents, mention is made of the ecstasies and visions of a nun whose character has been re-established with authority in these latter days. I speak of Saint Teresa. If that which Peter institutes on earth is instituted in heaven, none of the Blessed have a higher place than hers at the celestial court, and she is profoundly venerated by too many of the faithful for me to allow myself to liken her, as her historian, the Rev. Father Hahn, of the Society of Jesus, has done, to a mere neuropath. But I desire to comment briefly, for the honour of the medical profession, upon the respectful tone

in which the savants, who are least to be suspected of partiality, have spoken of her. Professor Charcot writes: "The life of Saint Teresa, in which that woman of genius, with a truly wonderful subtlety of analysis, makes us sound the depths of her pain." So we see that those poor savants, who are so much blamed for their lack of ideal and their materialism, can also do justice to great souls and honour the saints in their own way.

Very different is their treatment of the curious case of Sister Sainte Marie des Anges, whose secular name was Madame de Belciel, Superioress of the famous convent of the Ursulines at Loudun. This personage was a nun who had an excessive dread of sin against purity. After her nerve crises, in the hours of hallucination, she would see her good angel coming to her, "on the right hand," in long fair hair, and wearing the exact semblance of François de Vendôme, Duc de Beaufort, whose father, César de Vendôme, was the natural son of Henri Quatre and Gabrielle d'Estrées. But a more frequent visitor was the devil Isaacason, whose aspect used to throw her into violent convulsions, and who persuaded her that she was pregnant, as she herself states, adding: "I believed this firmly, *and I had all the signs of it that one can have.*"

The scandal was such that Laubardemont interfered. The following are, in their textual simplicity, the terms of his report to Cardinal de Richelieu:—

"It is a strange thing that the marks of pregnancy appear in her by continuous vomiting, stomach pains, and whitish serum issuing from her breast."

A few days later a nervous attack reduced all these symptoms to nothing. We know what became of poor

Urbain Grandier, because he, too, had been seen in a dream! Similar dreams made Madeleine de la Palud denounce Gauffridi, and Loyse Capel send the innocent Honorée to the stake. In 1642, at the time of the case of possession at Louviers, Madeleine Bavent saw the devil under the form "of a little very black stag-beetle."

"He flung himself upon my arms," she says, "when I wanted to begin to speak, weighed on me as heavily as a house, knocked my head against the wall, threw me down on the floor in the parlour . . . and they saw me *all bruised and livid, all black and leaden-coloured*, soiled and ill-used, without knowing where my *beatings* came from." Another woman showed black marks on her legs from bruises which the devil had inflicted by striking her with his iron tail, because she refused to yield to his temptations. A big volume might easily be filled with recorded cases of a similar nature.

The important point is that once these facts were established at La Salpêtrière, the exact signs of hysterical hallucination were traced throughout in all the annals of demonology. Formerly, as now, the hallucination was absolute. Madeleine de la Palud was quite sincere when she accused Gauffridi; equally sincere were the two priests of whom Pica de la Mirandola speaks, who accused themselves of visiting the devil every night, and were burned alive accordingly.

Whether the hallucination occurred on the day after a dream, or was followed by an attack, it was invariably connected with the predominant idea of the time, the intervention of the devil, or else a real fact of recent occurrence. And the visions have the same mobility, ap-

proaching from the right or the left, according to whether the subject was suffering from anæsthesia on one or the other half of the body. Only, in the sixteenth and seventeenth centuries, instead of being called partial anæsthesia, this was called "the seal of the devil" (sigillum diaboli). At Loudun in the time of Louis XIV., as at La Salpêtrière under the scientific reign of Dr. Charcot, hallucination by dream left marks which bore witness to the violence of the assailant.

Neurosis was especially prevalent among nuns in those troublous times: the idea of demons incarnate in sins tormented them incessantly, and as they lived in community they infected each other, so to speak, with the malady. The strangeness of their convulsive attacks and the crises brought on by the process of exorcism, led to the conviction that Satan had a hand in the matter. Sorcerers accused themselves in the course of their hallucinations; with the boastfulness which is common to all hysterical persons, they bragged of frequenting hell. How was it possible that they could escape the grip of the law? How could they fail to be condemned to the stake as agents of the Evil One? It cannot be dwelt on too impressively that never were magistrates furnished with documentary details more minute, with "pièces à conviction" more numerous or more precise. These judges have been accused of pure wickedness, of stupid cruelty, whereas they were simply honest men, absolutely convinced of the sanctity of their task of hunting down the devil, the eternal enemy of mankind, in their strong desire to purge the earth of him and thrust him back into hell! Is it not a curious thing, this

quasi-rehabilitation of Pierre de Lancre and Laubardemont and their fellows, of the State inquisitors and the ecclesiastical tribunals, whose memory has been branded by all the poets, and all the historians, in their generous enthusiasm, and whom the physicians of to-day exculpate, by showing that they could not do otherwise than as they did?

4.

In the present age such errors are infinitely more rare and have far less serious consequences. Nevertheless I wish to cite two which are in my opinion demonstrative.

Some years ago, Monseigneur de Ségur, who was a most pious and estimable prelate, published a small volume intended to propagate horror and dread of the Evil One by a striking recital of his most recent incursions upon the earth. In this volume mention is made of a pious young man who was visited one night by the devil. Next day there was a brown stain upon his shoulder, a plain trace of infernal handling, and he stated that the demon had touched him with a finger precisely on that spot. The story made some stir: ignorant disputants accused the bishop of inventing facts equally false and dangerous in support of his thesis, and I believe the word "imposture" actually appeared in print.

The experiences of La Salpêtrière lead to the belief that the fact, on the contrary, was genuine. It is much more than probable that the young man was an hysterical person subject to delusions; but a dream had sufficed to produce the bruise, and why should he not deceive himself as to its cause?

The other case to which I desire to allude is of more serious importance; it is the famous La Roncière Le Noury affair, in which Mademoiselle Marie de X. played, in 1834, the same part with regard to the unfortunate lieutenant, which Madame de Belciel had played just two hundred years previously, in 1634, with regard to Urbain Grandier, Curé of Loudun. This grievous incident is sufficiently forgotten to render it necessary to give some details of it here.

In the *Recueil des Causes Célèbres* we find that the following events occurred on the night of the 23rd September, 1834, at the abode of the father of Mademoiselle de X., a general commanding the Cavalry School at Saumur :—

"It was about two o'clock in the morning; the young girl had been asleep for a long time, when all of a sudden she was awakened by the sound of glass breaking. She threw back the curtains, and saw, by the moonlight, an arm pass through the space made by the broken pane, and raise the handle of the fastening of her window; then a man entered her room and walked rapidly towards the door communicating with that of her governess. At this sight Marie quickly got out of bed and made a rampart of a chair by crouching down behind it. Thus she could examine the intruder. He was of middle height, wore a great-coat and a red cloth police cap, with a silver band, as it appeared to the girl. He wore also a wide black cravat which hid his ears.

"The man, casting a terrible look at her, said: '*I am going*,' or '*I have come to revenge myself*.' At the same time he rushed upon her and violently wrenched away the chair to which she was clinging convulsively. Then he

seized her by the shoulders, flung her down, tore off her bed-gown, passed a pocket-handkerchief round her neck, and pulled it so tight that his victim could only utter faint moans; finally he wound a rope about her body and set his feet on the unhappy girl's legs.

"When she was thus garrotted, he bent over her, struck her violent blows on the breast and arms, and bit her right wrist. While striking and biting her, he said that he wanted to be revenged for what had happened to him at her father's house two days before. While he was speaking, his exasperation increased, and he redoubled his blows. '*Ever since I have known you*,' he said, '*something in you has made me want to do you harm.*' With this, a kind of fury seized the madman. He caught up an instrument which the girl could not see, but which she thought was a knife, and dealt her two strokes on the legs; other blows on the body inflicted severe bruises. So far, terror had deprived Mdlle. de X. of her voice, but now, the excess of pain restoring it, she uttered shrieks which reached the ears of Miss Allen, her governess. The latter rose immediately, and the man, hearing the noise that she made by knocking at the door, thought it was time to retreat. '*That is enough for her!*' said he, pointing to Mdlle. de X.

"At the same time he laid a letter on the chest of drawers, and withdrew by the window, which had remained wide open. 'Hold firm,' said he, probably addressing an accomplice. Then he disappeared.

"It is very strange that Miss Allen saw nothing and heard nothing except the moans which are habitually uttered by an hysterical subject when a prey to her

hallucinations, and so strong were the latter that the unfortunate girl, while dressing herself after this scene, plainly saw her imaginary assailant walking on the bridge in face of her window, and jeering at her.

"As for the alleged blows, they had been so slight that two days after the attack Mdlle. de X. went to a ball. Three months later a doctor, commissioned by the tribunal of justice, certified the existence of a very small and doubtful scar!

"The unfortunate lieutenant was identified by his accuser, tried, and, in spite of the eloquent defence of Chaix-d'Est-Ange, who endeavoured to show that Mdlle. de X. was the victim of her own delusions only, sentenced to imprisonment for ten years. He served the whole of that term at Clairvaux, and was not rehabilitated until 1849, upon a favourable report made by Odillon Barrot, who had conducted the plaintiff's case in 1835. It has since been clearly proved that the unfortunate lieutenant could have confounded his accusers by a conclusive alibi; but he kept silence because an avowal must have compromised a married woman. The lady also kept silence and allowed her lover to be condemned, in the interests of her conjugal peace!"

Might not this one fact, taken from the records of long ago, suffice to prove that the studies pursued at La Salpêtrière are not only of great interest to science, but also of practical utility to the magistrature?

5.

There is nothing more curious than the history of the human mind struggling with mystery, groping in the

dark, having no guide but the often smoky lamp of its own poor reason, which, however, is becoming a little more luminous day by day. That history has been written by the master hand of Professor A. Pitres in the treatise upon the origin of hypnotism in his *Leçons cliniques sur l'Hystérie* to which I have already referred.

It begins at Paracelsus, with the belief in sidereal influences, the Magnes, the archæus of Van Helmont, and in Robert Fludd, who makes out the earth and man to be a magnet with two poles, and recognizes a spiritual or moral magnetism and a corporal magnetism. This is almost identical with the present doctrine of M. Joseph Péladan and of his brother, the late Dr. Adrien Péladan, who was, like him, a Sâr. It dates from 1640, and to it Mesmer owed the making of his great fortune.

Antoine Mesmer was, it would seem, nothing more than an adventurer greedy of money and renown. His doctrine, which he had not even invented, was that of the universal fluid on which health depends and whence sickness comes, according to its flowing hither or thither. Every morbid state may be cured by changing the course of this fluid. The universal panacea had been found.

His method was very clever, and the *mise-en-scène* was admirable. The first process consisted merely of looks and touches. The professor was seated with his back turned to the north, his knees touching the knees, his eyes gazing into the eyes, his hands placed on the loins of the patient, slowly transmitting the excess of his magnetic fluid.

But, as the number of his patients increased, he had to accommodate his method to a crowd: he then conceived the idea of his famous 'tub.'

In the centre of a spacious room, where the light came through windows shaded by thick curtains, stood a circular barrel made of oak, six feet in diameter, a foot and a half in height; its contents were iron filings, powdered glass, bottles ranged around the edge with the mouths outwards, and rods of iron stuck into the mass. Around the barrel stood two or three rows of adepts united by a cord. Airs were played crescendo upon musical glasses, and Mesmer appeared arrayed in lilac silk. He waved his wand over the excited crowd and touched the seat of pain in each case; those who had not a sharp nervous attack—this was regarded as a salutary crisis—formed, we may be sure, a small minority.

The Academicians assembled as a sort of High Court; but Mesmer refused to submit to their control, was finally prohibited, and soon forsaken by his aristocratic patients. He departed from France in 1785, having made a fortune.

Then came the kindly Marquis Chastenet de Puységur, an excellent man, whose sincere philanthropy was affecting; he conceived an idea of quite charming simplicity. This was to magnetize a big tree, so that people might sit under its shade and wait comfortably to be cured. It was Puységur who, having verified the somnambulistic condition, imagined that it was favourable to divination, and that every sleeping "subject" would become a proficient in diagnosis on the spot, and capable of treating disease. He was so pleased with his discovery that on the 8th March, 1784, he wrote to a friend the following sentence, which breathes pleasant optimism and perfect amiability: "My head is turned with pleasure by seeing the good that I do around me." O, admirable race of large-hearted dreamers,

neither the wisdom nor the chaff of criticism takes hold upon you! The cause of truth is indeed injured by your enthusiasm, and in the end you bring bitter disappointment upon the good folk who believe in you; but you have loved your fellow-man so well, and you have preserved such freshness of soul, that the future will hold you in pleasant, almost tender remembrance.

In 1820 and in 1826, Foissac, a more discreet person, twice entreated the Academy to verify certain facts which he regarded as indisputable. At last the Academy consented to do this. The commission nominated by that body had to examine a singular jumble of precise fact and pure imagination. The sleep-walking state was observed carefully enough, but mixed up with this examination were stories of adventure quite too marvellous for belief, prediction of the future, diagnosis of maladies, and reading through opaque substances with the eyes shut. The Academy waxed wroth.

Nevertheless, once more the Academy consented to examine the "subjects" who were presented by Dr. Berna, a magnetizer. Burdin senior personally offered a prize of 3000 francs to whomsoever should prove that he could read correctly a piece of writing placed beyond the reach of sight and touch. Claimants came in a crowd; not one of them gained the prize, and the Academy decreed that magnetism was a chimerical idea, and that no further communications upon the subject should receive notice (1st October, 1840). The patience and the good will of the Academy were worn out, and the idea of laying down a plan of study, a programme of strict methodical research which would thereafter admit of

fixed knowledge upon one of the most interesting points which have ever been submitted to the deliberations of a learned body, did not occur to anyone.

Nevertheless, there was some truth in all this. At the very moment of that solemn condemnation by the Academy, Dr. Braid, of Manchester, was beginning the course of investigation that led to the discovery of "experimental magnetism." Already his unknown precursor, the Abbé Faria, had proved the complete fallacy of the theory of the fluid; he, too, had first described the phenomena of sensorial hallucinations, and realized the now common experiment of causing sensations to be felt by the 'subject' during sleep, by means of suggestion on the part of the operator.

Charcot was led logically to the solution of the problem by the progress of his studies in hysteria. He said to himself: "Five or six times, since the last century, the learned societies have been invited to verify the problems of hypnotism; they have never been able tc arrive at favourable conclusions. This is apparently due to want of method in the making of their researches; experimentalists have always allowed themselves to be led into studying the most mysterious, strange, and attractive phenomena first; they have not proceeded by degrees, and each time their too great haste has retarded the outcoming of the truth for twenty or thirty years."

Braid also described anæsthesia, and hysterical contractions, and quickly became assured that the hypothesis of a so-called magnetic fluid did not rest upon any sound foundation. Unfortunately he himself was beset by the temptation to theorize and make hasty interpretations,

and he made an unlucky mixture of his own really remarkable discoveries and Gall's doctrines. This led to his being relegated to unmerited oblivion.

Twenty years later, Professor Azam, of Bordeaux, published the celebrated result of Félida's observation, and laid especial stress—he is a surgeon—upon the anæsthesia of hypnotic sleep for operations.

But the great really scientific movement had not yet begun. Doctors, always very careful of the dignity of their profession, were afraid of compromising or making themselves ridiculous by approaching these unusual subjects which had hitherto proved perilous to the renown of those who had ventured to deal with them.

Then two savants, whose influence was decisive, intervened: these were Charcot in France, and Heidenhain in Germany, and their method was quite different. They said:—

"We will proceed after another fashion. We will take simple, rudimentary facts, easy to analyze, first, and we will not advance until we have secured our positions. Systematically and voluntarily we shall leave aside what are called the higher phenomena of magnetism, second sight, divination, the transmission of thought. Each experiment shall be closely examined by every means in our power. We shall be strictly on our guard against possible simulation on the part of 'subjects,' against the desire to make themselves interesting that is characteristic of hysterical persons, and equally careful to mistrust our own enthusiasm, the over-excitement that things reported to be marvellous create in so many observers. Above all, we will not go too fast. When

we find ourselves facing a phenomenon which captivates us by its strangeness, we will wait, if we do not feel that our knowledge is yet ripe enough for competent study of the case. There is nothing to hurry us; that which we shall not have been able to do, our successors will accomplish, for they will be armed with all that we shall have achieved."

Is not this resignation, this renunciation of knowing, this self-abnegation of the real savant before the Truth, a splendid thing, loftily philosophic, and worthy of admiration? And what a fine lesson of patience it teaches, one by which all might profit, including those politicians who believe, or pretend to believe, that by their mere human will a sudden rush of the progress of society, in those onward leaps from which nature herself with her slow transitions, abstains, is to be accomplished.

6.

The existing results prove the excellence of this method. The information that has been acquired in twenty years is astonishing in its extent and its precision. Hypnotism has taken rank in defined science. What has been done is quite definitive. It would need many pages to give an adequate idea of these things; let us try to sum up the essential elements of them in a few lines.

There does truly exist an hypnotic state which can be provoked, which is even spontaneous in certain 'subjects.' No human fluid is concerned in its production since the fixation of some or other luminous object suffices to produce it.

In this sleep the individual remembers; first, things of ordinary life; secondly, things which have taken place in a previous hypnotic state.

The persons put to sleep may have sensorial hallucinations, either spontaneous, or easily induced by immediate suggestion; it is not at all necessary to be endowed with an extreme intensity of will in order to impose those sensations; anybody can provoke them, quite simply, without any effort of transfer. Therefore no men are gifted more specially than others with the power of hypnotizing.

Acts may also be suggested which the sleeper accomplishes, either immediately, or after awakening, on condition that those acts do not concern the conscience of the individual who commits them. I have frequently seen hypnotized persons assassinate a pillow by command, but so soon as they are ordered to perform a really reprehensible and grave action the 'subjects' resist, get out of the affair by a nervous attack, and awake without having obeyed.

In spite of all their efforts, the really conscientious searchers into the truth, those most careful to avoid causes of error, never have been able to verify the perfect veracity of the phenomena of divination, second sight, and transmission of thought. The most enthusiastic assertions have always been reduced to nothing by experiments made under inspection.

However grievous the fact to some entirely convinced minds, these phenomena cannot as yet be admitted among established verities.

From the point of view of the study of human

psychology, the experiments of modern hypnotists taught us but little until M. Pierre Janet appeared as a collaborator in the common task, with his remarkable researches into Psychological Automatism and the Mental State of Hysterical Persons. M. Pierre Janet, multiplying his experiments with a very rare patience, has shown us all the importance of the fixed idea, of distraction, of the "narrowing of the field of consciousness" in the production of anæsthesia, paralysis, contraction, and the psychical phenomena which are present in hysterical subjects. Hysteria being a very special mental malady, it would perhaps be imprudent to attempt to generalize the knowledge which we have derived from it, and make it the foundation of the whole psychology of the normal brain. But we should be absolutely unjust did we fail to recognize how largely we are indebted for our new and precise knowledge to the universally esteemed researches of that philosopher-physician of whom the school of La Salpêtrière is justly proud.

From the judicial point of view, the knowledge of hypnotism has already rendered great and indisputable services. Juries are less credulous in the case of certain kinds of testimony, and the iniquitous judgment which condemned La Roncière would not be pronounced in these days.

7.

The results that have been obtained with respect to the interpretation of certain historic or legendary facts are still more curious: at La Salpêtrière, sleeping beauties, valkyries of Scandinavian legend, sibyls, prophetesses, women

possessed by the devil, and women bearing the stigmata may be reproduced at command. Thus a new light is thrown upon the chronicles of sorcery and demonology bequeathed to us by the Middle Ages. M. J. K. Huysmans—who is regarded by many of our young writers as the master of the supra-naturalist school whose coming they desire—evoked in the strange, daring work, *Là-bas*[1]—written in his well-known style, at once superb and morbid—the demon-world, the disturbing legion of the incubi and succubi; he revived spells, the black Mass, the Satanism of the past and the Satanism of to-day; for he asserts that the whole of this still survives. He declares that the end of the positivist century rears altars to Ashtaroth and to Beelzebub, and that supernatural facts exist which cannot possibly be explained otherwise than by the intervention of the evil one.

Now, these questions belong to the domain of medicine purely. The school of La Salpêtrière has treated them after its fashion, which is not at all that of M. Huysmans, and it is curious to compare that fashion with his, without criticism. *Les Démoniaques dans l'Art*, by Charcot and Paul Richer, *L'Iconographie photographique de La Salpêtrière*, *La Bibliothèque diabolique*, by M. Bourneville, the *Conférences à la Sorbonne* of Dr. Paul Reynard, will give persons who wish for it a mass of information which I cannot reproduce here in detail. I merely desire to relate how Charcot and his pupils were led to study such subjects, and to write one of the most interesting pages of the story of human error.

Without any reference to questions of demonology and

[1] Tresse and Stock, Paris, 1891.

sorcery—he was never at all curious about them—Charcot applied himself to the methodical study of the hysterical 'subjects' at La Salpêtrière. He found that hysteria, which had been called 'protean' for want of a word to describe it, has laws. He showed the hysterical 'subject' fond of gaudy colour and glittering baubles when she is young, dishevelled like a witch in old age. He described the insensibility of one half of the body, sometimes of the whole, to scratches, burns, and even the sharpest pain; the hysteric boil and ball, the pain in the ovary announcing that the attack is coming on, and he defined the habitual succession of the phases of the attack.

The first act, *the tetanic period*, begins with the stiffening of the limbs; the eyes become convulsed; the patient is rigid, unconscious, frequently bent like a bow, the head and feet only resting on the bed. Then come convulsive movements with ugly contortions of the face, the hands beat the air with three fingers extended, two bent inward on the palm.

A moment's respite and the second act begins, *the period of violent movements;* the patient leaps up into the air, falls back, and leaps up anew; contractions ensue, the patient becomes stiff and motionless, lies flat on her ace, or stretched out with extended arms as though crucified.

Third act: the strong paroxysm passes off; and now come rigid postures, ecstasy, terror, mockery, anger, the plastic expression of the hallucinations which the patient relates in her ravings. A characteristic of the raving is that it is in constant relation with the predominant subject of thought. So soon as it ceases the patient

comes to herself, weeps profusely, and it is all over. After all this excitement she is very slightly tired.

These facts had been observed, described, classified, and printed some years before Charcot bethought himself that perhaps there was some likeness in these cases to the tales of sorcerers, incubi, and possession of the devil. On his advice a number of black books were examined, all the old trials for magic—Jean Weier, Bodin, Bognet, Pierre de Lancre, Nicolas Remy, Abraham Palingh, Père Joseph, the Loudun case, that of Louviers and others besides; and, to the astonishment of the examiners, the symptoms of the malady of hysteria, with prints to illustrate the facts, were carefully described in all of these, as signs of possession.

Partial anæsthesia is the *sigillum diaboli*, the devil's seal, enough in itself alone to lead to the stake; total anæsthesia, insensibility under "the question," is "the spell of taciturnity," likewise diabolic. The bow-shape contortion is the habitual attitude of Mme. de Belciel, the superioress of Loudun. The convulsed face means that the demons come to look at themselves in it, and their grimaces are reflected; the hysterical sufferer leaps up: Beelzebub has lifted her body; she waves three fingers in the air, the devil is forced to witness to the Holy Trinity; the gullet is contracted, giving the sensation of the suffocating 'ball:' the 'spell' is working; the sufferer crawls on her hands and face, that is the attitude of the demon when struck down by exorcism; the attitude of the crucifixion is to mock the Holy Death.

The delirium in which the attack terminates is not,

as will readily be supposed, the same that prevailed in the time of Urbain Grandier. I think it is M. Regnard who has said: "Our patients are women of the faubourgs and not Ursulines. They rave no longer of Belphegor and Asmodeus, terrible princes of hell, but of M. Alphonse, the Prince Charming of the outer boulevard."

It follows, then, from the accumulated evidence of a superabundance of documents, that Satanic possession had all the characteristics of hysterical malady. To those whom this interpretation may disturb on the side of their religious faith, I would merely indicate the text of the Abbé Bergier, who agrees, in his *Dictionnaire de Théologie,* that the term "evil spirit" was applied in the Scriptures to maladies then unknown, and also to that of Rev. Père Debreyne, who admits, in his *Théologie Morale,* that many of the "possessed" were either sick persons or cheats.

At any rate, our interpretations are good or bad according to the time at which they occur: that of Pierre de Lancre was logical at its date. That of La Salpêtrière is certainly more likely to be accepted in the present day.

8.

In more than one novel, in numerous review articles, and in lectures, it has been attempted of late to revive one of the most singular practices of magic; the spell.[1]

You hate somebody to the point of wishing him to die, but not to that of risking the scaffold for yourself; you make, or get made, an image of your enemy, in wax for

[1] This word in French is *envoûtement.* The author adds: "I think it comes from *in vultus,* and ought to be written *envoultement.*"

choice ; it may be a rough effigy—Satan is not particular about the likeness. You wrap up the effigy in a handkerchief stolen from the object of your enmity, and thenceforth the sensibility and the vitality of its model reside in the image, or, to be technical, the *volt*. Thump this image, stick needles into it, crush its skull, and knock it to pieces, and your action means death at that selfsame moment, death in terrible agony, for the individual whom you loathe. And as the Procureur de la République will certainly not believe in black magic, it means impunity for you, who are an assassin, deputed either by God or the devil. This recipe, short of some cabalistic words, suffices for the majority of cases. It was adopted, in old times, for the gratification of hate, and the stake was sometimes its penalty. In our own day, impunity has not lessened its savour, for, hardly four years ago, the last of the exorcists, Dr. Johannès—Abbé Boullau to the profane—fell in a battle fought from afar. So, at least, it is affirmed by M. Jules Bois, one of the most fervent apostles of literary mysticism, who very distinctly accuses the Sâr Joséphin Péladan and his pupil, M. Stanislas de Guaita, of having killed by a spell (*envoûtement*), after published threats, that same Abbé Boullau, on whom the Rose † Croix had been making war for years with incredible persistence, by means of spirits perpetually occupied in conveying no end of deadly microbes and the most subtle of poisons from Paris to Lyons.

M. J. K. Huysmans, a great friend of the deceased, supported the accusation, and stated that he himself had been subject for a year past to fluid fisticuffs, which,

assailing him by night, came from the author of *Le Vice Suprême*. He added that the cat, his fireside friend, felt similar shocks at the same hour ; that the sorcery had been suspended for some time by the intervention of a third person ; but that, since the death of the Abbé Boullau, the persecution had been resumed, and was more malignant than before.

Only those who are unaware of the very marked evolution of one party in contemporary literature towards mysticism and spiritism, will be astonished that two minds so sagacious as those of MM. J. K. Huysmans and Jules Bois should give credence to these demoniac practices.

Beliefs which recruit such adepts ought not to be rejected without examination. Besides, modern science, which cannot remain indifferent to the matter, is not entirely undisturbed by this order of phenomena. But I am bound to say at once that it tends to exonerate M. Péladan from the accusation which has been brought against him.

Colonel de Rochas, who has achieved celebrity by his courageous investigation of the most seemingly perplexing phenomena, has occupied himself with reproducing, experimentally, the fact of spell-casting. It is even stated that a prelate, sent by the Congregation of Rites, came from Rome, in order to be assisted by the Administrator of the École Polytechnique in defining the respective share of the natural and the supernatural in all this. M. de Rochas has obtained results at a short distance only. He does not cast spells from Paris to Lyons, but within the maximum space of three or four yards. I have

seen him act as follows in the cases of Mme. B. and two persons named respectively Jeanne and Clarisse, all three patients of Dr. de Luys.

The 'subject' being not very sound asleep, it is possible to "exteriorize her sensations," that is to say, to render her skin insensible and to transfer that sensibility to a layer of air, situated at two yards from her. If this atmosphere be pinched or tickled at two or three yards from the hypnotized person, she cries, or is seized with a fit of laughter, precisely as though she were acted upon directly. If, instead of charging the said layer of air with her sensibility, it be conveyed to a glass of water or to a wax doll—here we return to spell-casting (*envoûtement*) properly so-called—merely touching the glass will make the sleeper perceive the touch upon her skin, and in the same way, if the doll's hair be pulled, or it is scratched, the hypnotized subject feels the corresponding sensation. If the doll is ill-treated the sleeper is in agony, and there is only a step—easy to be taken by people whose imagination sets in that direction—between this fact and the conclusion that she would die suddenly were the effigy to be destroyed at a blow; for, after all, what difference is there between the sixpenny doll and the *volt*, as it is described by the Sâr Joséphin Péladan, who is an authority in the matter?

As everything is progress in the present age, simple photographs, provided that the "subject" has touched them and let them go, may be operated on, to exteriorize her sensibility and vitality. And experiments of the same kind upon the employment of medicaments at a distance would also tend to show that it is relatively easy to poison one's

enemy from afar, without its being possible for the most skilful among the doctor-lawyers to discover the slightest trace of poison in the body.

At this point our knowledge rested, when an English physician, Dr. Hart, one of the most clear-headed men I have ever had the privilege of meeting, made a curious series of experiments together with me. These very simple experiments took place as follows :—

The hypnotized subject has exteriorized her sensibility and her vitality in favour of a doll. This sensitized doll only ought to possess the power—natural or magic—to serve as *volt* in the spell-casting. But have in your pocket another doll exactly like the first, which is not charged with any fluid, which has not had anything at all exteriorized in its favour, substitute it adroitly without letting the 'subject' see what has been done, and she, alas! will feel herself pinched, tickled, teased, neither more nor less than she did just now before the substitution. And the same takes place in the case of the sensitized glass of water, the medicaments at a distance, everything that formerly appeared so conclusive to the honourable colonel, whose scientific good faith is not in any way in question.

Conclusion: the subjects employed are skilful dissemblers, the experiments made prior to those of Dr. Hart were not sufficiently scrutinized, and the Sâr Péladan, excellent at rhythmical prose, is absolutely incapable, for the same reason as ourselves, of having cast a spell on the late Abbé Boullau, of strange memory, or of having troubled the head of that master of style, to whom we owe Des Esseintes.[1]

[1] The chief character in M. Huysmans' *Au Rebours*.

9.

May I venture to acknowledge that telepathy, which has, however, a great number of "adepts," has equally failed to secure our credence? The meaning of this new word, which is of Greek etymology, is as follows:—

You have a friend who is travelling in far-off countries. You believe him to be in perfect health. You have said to each other, jestingly, some years before: "The first of us who dies pay a visit to the other." One night you wake up, and by your bedside you see the pale face of your friend, which quickly fades away. You relate the fact of the apparition to intimate friends, who make fun of you, and a few hours afterwards a telegram informs you that your friend died in the very night on which his shade came to you. That is telepathy.

Group around these facts the observations of "lucidity" a sleeping girl, who describes a fire at the precise moment when it breaks out at a house situated at a distance of eighty leagues, the observations of presentiment, add to these the unexplained movements of turning tables and other objects, and the appearing of phantoms to people not subject to hallucinations, and you will have an idea of the sort of research that made a considerable stir at the Faculty of Medicine and at the Society of Psychology.

Old stories, you will say; our grand-aunts and our nurses told them to us long ago. Old stories, if you like, but it is much more recent to see a titular professor of physiology at the Faculty of Medicine, a savant who ha won just renown for excellent work, the editor of *La Revue*

scientifique, in a word, M. Charles Richet, taking the lead in this movement, giving it the official consecration and the authority of his name, doubly renowned in medicine, and lastly, patronizing and honouring by his eloquent pen *Les Annales des sciences psychiques*, the organ of the telepathists.

Now let us see how these gentlemen proceed to the collection of conclusive, scientifically valid observations.

Following the example of the English Society for Psychical Research, Dr. Darieux, the editor of *Les Annales des sciences psychiques*, addresses himself to the general public. He requests that all precise, fully detailed observations upon telepathy, lucidity, presentiment, &c., with all the proofs in support, may be sent to him, accompanied by the address of the senders, the documents to be legibly signed. All these facts are examined, scrutinized, and verified so far as it is possible, by a commission composed of:

M. G. Ballet, Associate of the Faculty of Medicine, Paris;

M. Beaunis, Professor of the Faculty of Nancy;

M. Charles Richet, already named;

Colonel de Rochas, Administrator of the École Polytechnique;

M. Marillier, Lecturer at the École des Hautes Études.

These are imposing names, are they not? And so this is done with the utmost seriousness. As Professor Charles Richet recommends in his preface, *Les Annales* do not encumber themselves with theories and vain doctrines. Facts are accumulated which are evidently very difficult of strict verification, but possess vivid interest.

For, after all, it is intensely interesting to know whether occultism is or is not a word devoid of meaning, whether forces as yet unknown to us do exist, whether thought transmits itself without material medium, and whether our brain can perceive realities unseen by our eyes, unheard by our ears, untouched by our skin, and which do not affect our senses of smell and taste.

Yes, says Professor Richet, a great unexplored domain into which we must penetrate does exist. To-morrow the occult will be science. Three hundred years ago electricity was an occult force. Chemistry has been an occult science, and was called Alchemy, and it is not yet twenty years since animal magnetism ceased to be an occult science.

All this seems like sound reasoning, does it not? And we must give M. Richet credit for the great courage which he displayed, for, like all daring spirits, he has aroused strong opposition among the larger number of his colleagues, even among the boldest innovators. This is because the more we advance in the methodical study of neuropathy the more surely are brought back things the most supra-physical in appearance to the rank of very simple and commonplace phenomena. Read *Les Leçons cliniques sur l'Hystérie et l'Hypnotisme*, by Professor Pitres, —we have already borrowed from him more than once— and there you will find a chapter in which almost all the wonderful stories of extra-lucid somnambulists are explained more than sufficiently and by very natural arguments. Read also the small work of Professor Jean de Tarchanof of St. Petersburg, *La Lecture des Pensées*. It is very disconcerting to those who love mystery.

Charcot, whose opinion carries great weight in the matter, had no liking for telepathy. It was worth while to see the fine silent contempt that became visible in his Cæsar-like face when the conversation turned upon that subject! He had ceased to preside over the Société de Psychologie since the telepaths spoke at its meeting.

The following was his view of the matter:—"It is very possible that there may be something at the bottom of all this," he said, "and I do not care whether there is or not, at least, for the moment. These are phenomena which only future generations will have the right to study, because the present are not ripe, not sufficiently equipped for the task. It was by wanting to go too fast that at the end of the last century, and the beginning of the present, knowledge of the scientific truth in magnetism and in somnambulism was thrown back for years. If it is my doing that more way has been made in these questions than had been made for hundreds of years, it was by dint of severe method and scrupulous patience, and by obstinately refusing to concern myself with over-intricate mysteries. To go too fast is to disturb men's minds uselessly, and inevitably to retard the disclosure of well-ascertained truth. And besides, that method which rests upon making use of everybody's observations, collecting facts which have been witnessed by unpractised, inevitably credulous eyes, is the least scientific and the most imprudent of methods, whatever precautions may be taken."

Is this to be regarded as the reasoning of a man who had 'arrived,' and did not want others to go more forward than he? Frankly, I do not think it is. It was

the language of wisdom, of method, of that scientific opportunism which is the very condition of progress without reaction. I acknowledge that I myself have been tempted at times to believe in telepathy. There are coincidences not to be adequately explained by coincidence. The following fact, however, although apparently astonishing, is very simply explained, as we shall see.

One of my friends, M. X., was obliged to go to Étampes on business, there to remain some days, while his wife had to stay in Paris. One evening, while he was taking a solitary and melancholy walk, he was haunted by the recollection of an evening passed in the country in the preceding autumn; that evening his wife and he had devoted entirely to studying the score of Massenet's *Hérodiade* at the piano, and now, a year later, its principal themes rose from the depths of his memory to his lips. What was his surprise when next morning he received a letter from his wife telling him she had passed her evening in playing the whole of Massenet's opera on the piano. What a fine case of telepathy, and how was it to be denied! Unfortunately M. M., whose mind is of a critical turn, did not accept this interpretation without reflection, and he speedily found the key to the mystery. The fine autumn evening of the previous year which they had devoted to Massenet's *Hérodiade*, was an evening just like that of yesterday; same season, same veiled sky, same scent of mist in the air at Étampes as in Paris. A similar night had evoked a similar auditory image in two minds accustomed to the closest intimacy. Nothing more natural, in short, and nothing less telepathic.

This little fact, and some others in the same sense,

urge upon us the prudence of reflecting for a long time before we admit a hope which so many brilliant minds cherish, and whose realization would have incalculable consequences, as true. With the transmission of thought from mind to mind without intermediate agency, what confusion must reign amid the human race!

10.

Dr. Mesnet, of the Académie de Médecine, was one of the first to attack the problem of somnambulism. All those who, like myself, have been his pupils, know with what enthusiasm and earnestness he applied himself to the study of somnambulist phenomena, and how he strove to separate the true from the false, "the wheat from the tares," as he used to say to us. The result of this toil is a book which contains a number of instructive things: the differential definition of two kinds of somnambulism, the spontaneous and the induced, a very clear study of memory in the primary condition and in the second condition, the famous adventure of the somnambulist Didier, who was condemned by the police court, and acquitted on appeal, after experimental examination by MM. Motet and Mesnet, who sent him to sleep before his judges and proved his innocence, full and formal answers to the questions which Tardieu put without venturing to resolve them, in 1862; and we find the culminating interest of the work, its new and truly curious side, in the chapter on "Fascination."

The induced somnambulist state assumes two different aspects according to whether the eyes of the sleeper be open or shut. The somnambulist state with open eyes

is accompanied, when it is at its full, by a phenomenon exactly to be compared—I borrow the image from the author—with the fascination exercised by the *muleta* which the matador presents to the wearied bull, tormented by darts in the arena. So long as the animal is not sufficiently jaded to make it easy to attract his gaze, he is pursued and harassed until the moment when his eyes fasten themselves on the proverbial "red rag" and follow its every movement. At that moment the bull has lost his spontaneousness, the field of his perception is contracted; his entire attention, exhausted by fatigue, is specialized upon the bright colour, and nothing of his defensive sense remains to warn him that death is close by. Nothing but the red flag that he gazes at, the red flag now become his 'obsession' reaches his brain. This is why it is easy to kill him.

'Fascination,' in the human subject, sometimes assumes a yet more absolute character; this we observe in the case of that station-master whose death was so tragic after a life so strange.

One day he was superintending the business of his station, when he was knocked down and run over by the tender of an engine in motion. The wheel had crushed the left arm close to the shoulder, the right leg, the thigh, and the pelvis. The unfortunate man died half an hour after; but amid his farewells to his family and his groans of agony, he contrived several times to express his wonder at the possibility of such an accident.

"My God! what has happened to me?" he said. "How has all this been done? I was at my duty on the

line, and here I am, smashed, without having seen or heard anything."

He had no recollection of having incurred any danger.

An inquest was held, and the following particulars were ascertained :—

The station-master was walking between the lines; the moving engine, having passed the points, backed and whistled shrilly. At the sound of the whistle he turned his eyes towards the engine, and suddenly stood still, his eyes fixed, his head thrust forward, fascinated by some shining plate or lantern gleam, and he stirred no more until the shock came that smashed him. There might have been a suspicion of suicide; but the inquest revealed a number of facts which fully confirmed the hypothesis of death by fascination. On several occasions the station-master had fallen into the somnambulistic sleep, with his open eyes fixed, for instance, on an ornament worn by a lady who was making an inquiry of him.

One day he had been seen, mute and motionless, at his doctor's door, stupefied by the brass plate; on another occasion he gave the signal for the departure of a train, and then ran after it, gazing fixedly upon one of the lanterns at the end. Again, in passing along the footboard of a carriage, he stopped with his eyes fixed on the window glass which was shining in the sun. The train started, and the man remained on the footboard, rigid, rooted to the spot, until the engine slackened its speed on approaching a station. Then only he let go, stretched himself, beat the air with his hands, and fell off into a trench by the side of the way.

When experiments analogous to this case are shown

in a hospital, sceptics are sure to suspect the experimentalist of credulity, and his 'subjects' of deception. But can any doubt exist respecting the sincerity of that poor station-master, who was not under observation by any doctor, and whose oddity only made him ridiculous until the day when he died of it?

These observations of clearly defined and demonstrative neurotic cases are very singular and instructive. The philosopher and the dreamer can no more remain indifferent to them than the physician, for it seems that such maladies are nothing else than the organization of our passions, the reduction of them to a system. And besides these victims of absolute fascination whom a locomotive's lantern isolates from the rest of the world to the extent of blinding them to everything else, even to the imminence of death, how many other victims of similar, although less positive malady, are there? What of Don José, who kills and turns brigand in order to follow Carmen who happens to pass by, and what of the poor fools who forget all whom they have loved, because one fine day two big bright eyes have captivated them?

II.

This synthesis of the critical and philosophical work accomplished under the impetus given by Charcot, must not be terminated without a few words on Miracle and the light in which neurologists are led to regard it.

I know that deep convictions and strong feelings may be hurt by the discussion of such a subject; nevertheless, I venture to approach it fearlessly, because, taken as it

has been by the school of La Salpêtrière, there is nothing to give offence in the matter.

The study of the diseases of the nervous system has led to a very natural explanation of a number of facts reputed to be miraculous: of this I wish to speak with some precision, leaving each one to draw such conclusion as pleases him.

In a booklet entitled "Faith Healing"—one of the last things he wrote—Charcot has summed up the historical information and the recent observations which enable us now to form an opinion for ourselves. He has shown how all religions and all civilizations have had their miracles, invariably similar, how the Asclepieion of ancient Athens resembled the sanctuaries of our day in every respect, had the same votive objects, the same intercessors, and the same physicians charged with the verification of cures. He has established the identity of the phenomena obtained from the time of Simon Magus down to that of Prince Hohenlohe at the beginning of this century, including the history of Pâris ('le diacre'); he has related how, when travelling in Provence, he found a moulding typical of the spasms of hysterical patients. According to dates or latitudes the statues of the healing god or saint differed: the spirit of man, ever the same, prays at all the altars for supernatural intervention that will give him to drink of hope.

Can we fail to be struck by the limits within which Miracle has been confined at all times, in all places, and has never gone beyond? In his very curious work, *Les Démoniaques dans l'Art*, written in collaboration with M. Paul Richet, Charcot had already

pointed out that the pictures, prints, and votive images intended to perpetuate the remembrance of a supernatural interposition seldom represented anything but patients in convulsive crises of their nerve maladies. Ancient and actual records alike hardly ever tell us of the sudden care of anything but paralysis, contractions, blindness, deafness, all customary symptoms in hysteria. From time to time we hear of the sudden and miraculous disappearance of a notoriously incurable disease of the spine, but the sufferer from neurosis simulates ataxy and assumes its aspect with such success that skilful practitioners are frequently deceived.

Crutches only are hung on the walls of the miraculous grottoes; never a wooden leg. Anatole France, who has devoted a chapter of his marvellous work, *Le Jardin d'Epicure*, to Miracle, says, "Hitherto the sepulchres of the saints, the sacred fountains and grottoes, have never acted except upon patients affected by diseases either curable or susceptible of momentary remission . . . . Miracle undertakes nothing against the celestial machinery. It is not exercised upon the course of the stars, and it never advances or retards a calculated eclipse. On the contrary, it disports itself in the darkness of internal pathology, and especially in nervous diseases. . . ."

The definition of Miracle is a derogation from the laws of nature: it is the intervention of the Most High condescending to retouch His first work in order better to reveal Himself to man and to confound the philosophers and the doubting. But why has He not shown forth His power otherwise than in cures which might be effected as easily by the first strong emotion, a cold douche, or a séance of

static electricity? And why are the tombs of His saints gifted with no more healing powers than the Asclepieion of idolatrous Athens, or the reprobate tomb of Pâris ('le diacre')?

The Medical Bureau at Lourdes, which was instituted for the scientific establishment of miracles, readily acknowledges that a number of cures do take place before the Grotto of the Virgin, in hysterical cases. Such cases are of no account. But, on the contrary, great importance is attached to attested cures of cancerous tumours, or severe ulceration, because cancer is unanimously believed to be an incurable malady, absolutely independent of neuropathy.

It is certain that cancer is not a symptom of hysteria, but it is also an undeniable fact, according to the observation of neuropaths, that certain sores, certain ulcerated growths, are completely cured under the influence of tonic treatment or that of strong excitement of the nervous system. I saw one of these dull sores, which had shown no tendency to amelioration for more than twenty months, healed promptly by the use of hypodermic injections of salt water, artificial serum, which is but a purely mechanical stimulant of the central nervous system.

In his work, *La Vérité sur les Miracles opérés par M. de Paris*, Carré de Mongeron has left us an instructive description of the case of the girl Coirin, with drawings in illustration of it. In September, 1712, this girl fell off her horse on a heap of stones; her left breast was severely bruised, extravasation of blood took place, continued, and was taken for a cancer by the local surgeon,

Antoine Paysant; in fact, ulceration presently appeared, and there was a profuse discharge. A little earth brought from the cemetery of Saint-Médard dried up the sore immediately, at the same time that the mere fact of putting on a chemise which had been in contact with the tomb of Pâris cured the paralysis with contractions by which the girl was affected. It must be said, in order to observe strict accuracy, that the supposed cancerous sore was not cured on the spot, but took a whole month to cicatrize.

And it is thus that miracles are still performed in our day. These stories of cancerous breasts coming out of the bath free from disease, and fresh, smooth, unscarred skin immediately covering them, are legends—not completely forged, but hyperbolized, so to speak, by the popular imagination in its greed for the marvellous. Certain tumours treated by the miraculous water have been cured slowly, in some weeks; having resisted antiseptic dressings until then; that is the truth. And in cases of muscular atrophy likewise, the 'miraculous cure' removes the paralysis or the contracture in the course of a minute; but it does not repair the shrinking of a limb under many days; the atrophy disappears like every atrophy, by the slow repair of nutrition. The cure takes place according to the laws of nature, having been induced by the whipping-up of the nerve-centres of a neuropath.

The foregoing is what the school of La Salpêtrière teaches us concerning the faith that heals.

In principle, that school does not believe in miracle, inadmissible by every mind which has effectually

studied the laws of nature; against these nothing can prevail. To those who oppose that school by arguments from facts, it replies by facts more severely investigated, more judicially compared with others, and put in their place. But far from condemning pilgrimages to holy places, it holds that these ought to be blessed for the hope, and sometimes the relief, that they afford to human misery. The faith that heals is but suggestion; what does that matter, since it heals? There is not one of us but has sent some patient to Lourdes and ardently hoped that she might come back cured.

It were useless cruelty to desire to deprive simple minds of such a source of consolation! What does it matter to our pride, to our dignity as men; is it not enough that some savants, some philosophers fully understand our isolation and the supreme indifference of nature to our pain and grief? I find this sentiment in every page of Zola's *Lourdes*, and it lends to that poem of human pain and hope the lofty forbearance and the sovereign serenity that render it one of the most profound, touching, and humane works of this age.

CHAPTER II.

DOCTORS AND THE LAW.

Hypnotism and the administration of justice—Responsibility of criminals, moral responsibility, legal responsibility—Philosophers and magistrates: the genesis of the idea of justice—Mitigated responsibility—History of an "irresponsible"—The theories of Lombroso upon the "born criminal"—The genesis of crime; the part played by imitation; religious education and the prophylaxis of crime—An army of offenders.

I.

WHETHER the studies in hysteria and hypnotism which were carried out, as we have seen, by Charcot and his pupils with such precision and so evident a love of truth, may be utilized in the cause of justice, is a question full of interest. Can the application of their results enable the judges of an accused person to search the depths of his mind for the truth respecting the acts imputed to him?

This question will lead us by degrees to understand the *rôle* of the neurologist-physician in his relations with human justice.

But we must confine ourselves at first to the following query. In presence of an inculpated person who persists in denying his participation in a crime or an offence, may not the 'juge d'instruction,' or the president of the Court of Assize send for a doctor and direct him to

perform the movements which procure hypnotic sleep? In that condition, his will being no longer present to prevent him from speaking the truth, the avowals of the accused would be accounted true, his denials in a waking condition would be held to be false.

If, verily and indeed, there be in this a new and certain means of getting at the truth, by what right should magistrates, who are so often perplexed, be deprived of it? Recourse to this means would be a revolution in custom, but what matter, if it have the great excuse of giving additional security to the investigation of truth? Such a question—which was put to me at the time when *Le Supplément littéraire du Figaro* was so usefully engaged in treating the most frivolous and the most serious subjects alternately—could not be settled otherwise than with the aid of jurisconsults of great authority and doctor-lawyers of repute for their learning and integrity.

The following is the letter on this subject which was written to me by M. J. Leveillé, Professor of Criminal Law in the Faculty of Paris:—

"Those who believe in hypnotism maintain the thesis that the hypnotizer governs the hypnotized. How, then, could they place reliance upon the answer of a hypnotized person without misgiving? Most frequently on their own principle, that answer would be an echo rather than an avowal."

Here is another opinion expressly drawn up for us. The signature of M. Arthur Desjardins, Advocate-General at the Cour de Cassation, Member of the Institute, needs no complimentary epithets.

"I do not think it ought to be permissible to a 'juge d'instruction' to cause accused persons to be hypnotized by a doctor in order to make them speak. In the first place it is not proved to demonstration that the truth would be obtained from them by such a proceeding. All these men are not equally susceptible of hypnotic suggestion, this factitious somnambulism may be accompanied by hallucination; certain 'subjects' may fight against the will of the hypnotizer and deceive him. I do not conceive that an accused person ought to be acquitted or condemned because he has proclaimed his own innocence or his own culpability, either in sleep, more or less sound, or in a half morbid psychological or physiological condition, still less that others, said to be his accomplices, ought to be implicated on the revelations of a person thus unconscious. Lastly, the proceeding, even though it were certain to obtain the truth, does not appear to me legitimate.

"This proceeding differs completely on one side from torture; it is not from pain that an answer is extorted; but it approaches to it on another side—the avowal is not free. An accused person ought not to be condemned on his acknowledgment of guilt unless he speaks with the fulness of his moral freedom and of his reason. Therefore it is that several modern codes forbid the 'juge d'instruction' to put insidious questions. In a word, free defence is of natural right.

"This principle is disregarded when the person inculpated is thrown into a state of which he is himself ignorant, and loses even the instinct of self-preservation."

The following is the opinion of M. Adolphe Guillot, the eminent 'juge d'instruction,' Member of the Institute:—

"I do not think hypnotism can ever enter into our current practice. It belongs to a corner of science too recently brought to light. Can we be sure that the hypnotic condition is a state of perfect sincerity? I can understand that induced sleep should be studied in the interests of science, but I could not venture to avail myself of that means against an accused person. It frequently happens that the accused from whom I am seeking to extract the truth talk at night in their ordinary sleep. Sometimes there is somebody within hearing who offers to repeat the words that have escaped them, and would betray their secret. I refuse to listen to things which have been uttered without their free will. The accused ought to be free to defend himself; I, the 'juge d'instruction,' ought not to take him treacherously by surprise; in the first place from the rather sentimental motive that it is ungenerous, and secondly, from the more valid one, that sleep, whether normal or hypnotic, is no guarantee for the truth's being told. In Paris I should run no great risk by allowing any accused person to be hypnotized by those two or three doctor-lawyers whom everybody knows, and who are so intelligent, so learned, and prudent that the most absolute confidence may be placed in their judgment and skill. But just think of one of my provincial colleagues summoning a worthy village doctor and asking him to study from the medico-legal point of view 'the second state'—is it not thus that your Maître Azam, of Bordeaux, expresses himself? I shudder only to think of the second state of an 'accused.'

"Laboratory experiments of the deepest interest, medical and philosophic, by all means, but the idea of making them pass into practice must be given up once for all. I will lay a wager that your medical brethren are of my mind on the matter."

Doctors are, as a fact, of the opinion of M. Guillot, with one slight restriction. They hold that there are cases —extremely rare, it is true—in which the experienced physician may, and ought to demand authorization to hypnotize the accused before the magistrates. But their opinion is sufficiently curious to be given in some detail.

It was once my good fortune to be able to bring together four physicians who are certainly the four most competent men in Paris in the case in point, and to get them to talk at some length:—

The lamented Professor Charcot, "the father of hypnotism;"

Dr. Brouardel, Dean (*doyen*), and Professor of Forensic Medicine in the Faculty of Paris;

Dr. Motet, one of the two or three very eminent alienists whom we possess, and, I believe, the only Parisian doctor who has had an opportunity of hypnotizing before judges;

Lastly, Dr. Gilles of La Tourette, formerly head of the hospital of La Salpêtrière and author of the *Traité chimique et thérapeutique d'Hystérie*. This, and *Leçons chimiques et thérapeutiques sur l'Hystérie et le Somnambulisme* by Professor Pitres, are regarded as the most complete and instructive works in this order of study; these gentlemen have treated the question to its very depths, and I only sum up their collective conclusion.

"To induce hypnotic sleep in order to try to obtain an avowal from a guilty person, or one supposed to be guilty, which he would not have made without that sleep, would be to return to the practices of the Middle Ages, with the hateful part which doctors were made to play in examination and torture.

"In the time of the Inquisition, doctors, surgeons especially, were employed to examine those who were supposed to be possessed, in order to see whether they presented the *stigmata diaboli*, or devil's marks. Some of these doctors acted with horrible cruelty; for instance, Mannoury, the surgeon, who literally tortured Urbain Grandier. When an individual was condemned to death for sorcery, his 'toilette' was made: in order to render him more hideous his eyebrows and his nails were torn off. At the death scene of Urbain Grandier a surgeon, named Fourneau, was taken by force from his house by two archers of the guard, and constrained to disfigure the condemned man.

"In State trials, there was also a surgeon present at the application of torture, so that it might not be carried too far and the patient die on the spot. Several refused, at their own risk and peril, to lend themselves to such doings.

"None of us would consent to hypnotize a patient, to annihilate his liberty, in order to drag an avowal from him. Nor would any magistrate constrain us to perform so hateful a task.

"Many persons, for instance, go to law with railway companies for the damages which they claim on account of railway accidents. The company sometimes

asserts that these complainants are pretenders and their injuries simulated; we are called in as experts. Our only means of arriving at the truth is by giving chloroform to the claimant. This means we never employ without the authorization of the person interested, and that person, we must admit, never authorizes us to employ it.

"In the matter of hypnotism there is yet another danger. Who can say that we are not confronted by very clever pretenders or those very perverse neurotic persons who delight in deceiving us? Who can say that we are not about to receive lying confidences, so cleverly contrived as to arouse suspicion, compromise third parties, and set the investigations of justice astray?"

And nevertheless, hypnotism has done good service to justice, two or three times, but under the entirely special conditions which I am about to describe.

If the person accused of a crime or an offence has shown signs of disturbance of the nervous system, or if the doctor who examined him has been led by the very nature of his examination to a certainty of the existence of such disturbance, and to establish a relation, whether direct or only possible, between it and the alleged criminal action, there can be no indecision. The doctor's clear duty is to demonstrate that the crime or the offence proceeds directly from the morbid condition, and he has a right to replace the subject, if he can, in the condition of the moment when he committed the crime or the offence.

"I know," Dr. Motet said to me, "two cases which were exhaustively examined. One is a case of Dr. Dufay's, Senator of Loir-et-Cher, the other is a case of my own.

"The case examined at Blois by Dufay is this :—

"One day a lady stated that some jewels had been stolen from her. In her opinion one person only could be guilty, a young servant whom she believed to be honest, but who alone had the key of the jewel box. The young servant, being put in prison, denied the theft with all the appearance of sincerity. The man in charge at the prison told Dr. Dufay that the girl was subject to spontaneous fits of somnambulism. The doctor contrived to place her in the condition of induced sleep; in that state she acknowledged the theft and told where the jewels would be found. It was easy to demonstrate that the girl, having committed the theft in the state of hypnotic sleep and therefore of irresponsibility, had no recollection of it except in the same state. The experiment was repeated before the Court and led to her acquittal.

"For my part, I was so fortunate as to procure the acquittal of a poor fellow who was condemned by the Court of Appeal from the Police Correctionnelle of Paris to three years' imprisonment for a criminal assault, on the 25th January, 1881. Without entering into the case —it was heard *in camera*, and the details are of no importance—I can tell the story. I had known this man as a patient whom my friend Dr. Mesnet attended in his hospital rounds at Saint-Antoine, and I knew him to be subject to attacks of spontaneous hypnosis: the act of which two policemen had accused him was so likely to have been merely a crisis of hypnotic sleep that I had an appeal lodged, and demanded to be called as medical witness. The examination which I carried out proved conclusively to me that the man was innocent, and I

asserted this strongly. The Court showed some hesitation. The Advocate-General, M. Bertrand, called on me to prove what I affirmed. President Maneau—I shall be always grateful to him—did not hesitate to furnish me with the means of doing this. The hearing was suspended, and I was authorized to make my experiment before the Court in the Counsels' room. I placed the patient in the hypnotic state, and it was easy for me to show that he must necessarily be acquitted. In such cases, patients live by turns in two states, one is the normal, the state of habitual waking; the other the *second* state, that of hypnotic sleep. When they are awakened they do not remember what they have said or done in the hypnotic condition. There is nothing contrary to professional duty in inducing or awaiting the return of the attack in order to gain information. Nothing more is involved in this than the precise determination of a pathological condition."

So spoke M. Motet, and he was approved on all points by M. Brouardel and M. Charcot.

Thus, according to all the lawyers and all competent savants, hypnotism must not be utilized by justice for the purpose of extracting an avowal from an accused person. Nothing is more opposed to freedom of defence; nothing is more doubtful from the point of view of security in the search for truth. On the other hand, the most competent physicians affirm that for the purpose of saving an innocent person such a course is perfectly legitimate, as we see by the judgment of the Court at Blois (case of M. Dufay) and the judgment of the Court of Appeal in Paris (case of M. Motet).

Here, then, is the state of the question briefly summed up; and I am anxious not to allow the result of this little inquiry—which constitutes, I believe, the only document that we possess on the subject—to be lost.

2.

This, however, is but a little corner of the domain of the doctor-lawyer. His constantly increasing *rôle* is of far other importance. Several of the magistrates are alarmed by it, and each time that occasion arises for a medico-legal report to decide the non-existing or the modified responsibility of a murderer, the journalists make a point of declaring that science, with its modern doctrines, tends to disarm justice and to sap one of the essential pillars of a civilized society. The public, too, finds it difficult to accustom itself to the attitude of the 'criminalist doctors' in presence of some horrifying and monstrous crime from which every mind recoils, especially the sensitive and vindictive minds of women: why should we be talked to about abolished or diminished responsibility, when all our being rises in revolt, crying for vengeance and demanding justice!

And, indeed, to deny free will as a rule, to regard criminals as sick people, is actually to desire to substitute therapeutics for punishment, the douche for the guillotine: now what can be more evident than the great disproportion between the premeditated assassination of an innocent victim and the hydropathic cure?

Medicine has made much progress with respect to its technique; frequently, with fine precision, and certainty sometimes astonishing, it enables the magistrate to fix

the date, the nature, and certain incidents of a murder. But, in truth, what business has medicine to demand that all the alleged great criminals shall pass through its hands? What an evil triumph for it when it has made the discovery that a certain assassin is the son of a drunkard, or that his brother has epileptic fits! This is to disarm the public prosecutor at pleasure, to cut off the right to punish. It is to prevent society from defending itself, and this for some sort of motive of mistaken humanitarianism and misplaced sentimentality. Let medicine begin by compassionating the honest and well-conducted folk whose safety is threatened.

It is essential that such objections should receive the clearest answer possible.

There is a paragraph in the dictionary of Littré and Robin in which we find the following: "Whatsoever idea may be formed of *moral* responsibility, there is no doubt about *legal* responsibility; the latter, having no other aim than to preserve society, either by sequestration or by intimidation, must affect criminal lunatics, non-lunatics, or so supposed; this amounts to saying that criminals ought to be treated as sick persons, and very dangerous criminals as patients in great danger."

This is saying plainly that we are not only humanitarian utopists, mere dreamers bewailing the fate of wild beasts, but plain practical minds, fully recognizing the right of society to defend itself from harmful men just as we defend ourselves against mad dogs. We are all agreed in distinguishing between moral and legal responsibility, between a scientific doctrine which verifies itself day by day, and the clear necessity

for defending orderly people against certain men, who, voluntarily or not, are dangerous. We know that to kill some one, or to kill one's self, is to be in an abnormal state of mind, it is to have a blemish, a malady of the mind: philosophically speaking, one can no more be responsible for the lesions and the functional disturbances of one's brain than for the ill performance of their functions by one's heart or one's lungs; the man with a diseased lung is, however, not formidable in any way, whereas persons who are violent or perverse are dangerous to the property or the life of others.

Few modern philosophers or savants dissent from the general denial of the existence of free will as it was formerly understood: delinquents, criminals, are actually only persons sick of will, since their will has been too feeble, too much paralyzed to bridle their evil impulses. The vast majority of them have had nothing wherewith to contend against the worst hereditary influences but an abominable bringing-up in promiscuous association with malefactors of the worst kind. They are the offspring of neuropaths, epileptics, drunkards, or thieves; they have lived in ignorance of good and amid the contagion of evil: these conditions do not allow them full liberty for the choice of an honest life. In a work which contains very remarkable statistics, M. Henri Monod has told us how many convicts are in asylums; the transfer of lunatics from the prison to the hospital for the mad is a fact of daily occurrence. The accumulated results of the studies in 'degeneracy' made by M. Magnan and his pupils irresistibly lead to the conviction—and all the knowledge that has been acquired of the functions of the

brain forces us to the same—that the old arsenal of the psychology of the past is a worm-eaten fabric and tumbling into dust. But what matter, since by our practice we proclaim the right of social preservation?

3.

The principal misunderstanding between savants and magistrates arises thus :—

The magistrate wants to be a Judge: to punish a criminal, to chastise him for his intention, which has been to do harm, to choose the worst way, with full freedom of will. This is the part which the magistrate assigns to himself to-day, just as in the most distant historical times. The man who sits on the bench in a red or a black robe has such faith in the majesty of his mission and such confidence in his own mind's penetrating power, that he is prepared to "try the heart and the reins," to scrutinize, to apportion the most secret meanings of another soul; a task which only God can accomplish. I had recently the honour of dining in company with a magistrate who is eminent by reason of his rank, his age, and his intelligence; I was very quickly convinced that his philosophy had not progressed one step since his school-days. He started when I gave expression to the hope that a course of physiology might be instituted at the School of Law to initiate the coming generations of lawyers into the functions of the human brain, and he cut short my discourse by affirming that the idea of justice came to us from a divine source, and that the inauguration of the annual opening of the Courts by the Mass of the Holy Ghost—for all that it had the drawback of annoying

the radical party—signified that human justice held the right to punish from on high. This republican magistrate, however, would not have failed to shrug his shoulders if he had been reminded that the monarchical institution was also of divine right.

There is a tendency at present to admit that the genesis of the idea of justice is more humble. Littré likened it to an idea of compensation, to our need of equilibrium, of harmony; he made it æsthetic. The knowledge of cerebral physiology that we now possess enables us to speak of it with more precision.

Let us recall for greater clearness the ancient legend of Cain and Abel. In that age the nervous system of man, infinitely less complicated by sensations and notions than it now is, proceeded by simple reflexes: indeed, even at the present time, we are hardly other than machines for restituting in action the sensations received and sent to our brain by our sensitive nerves. Now this is the quarrel between the two brothers. Abel, struck by Cain's fist, strikes back again, returns what he has received, and transforms sensation into corresponding action. Cain strikes him again; he is the stronger; his clenched fist reduces Abel to powerlessness, and he lies prone, one of his arms is broken, vengeance is not possible; he has, however, perceived the hard blow struck by his brother: this is a violent nervous vibration sent to his brain and which cannot escape, cannot become an analogous act, and transform itself into accomplishment as every sensation of this impulsive and simple being is accustomed to do: the reflex is incomplete, the equilibrium is disturbed. And this agony of paralyzed movement, this "no farther

shalt thou go" at the moment when the whole being is rushing to action, to reply, is the beginning of the idea of injustice, which has evidently preceded the idea of justice. The latter came later, when, for example, a weak and almost vanquished being suddenly beheld his adversary struck down by a third person, devoured by a wild beast, crushed by a falling rock, struck dead by lightning: for that being the idea of justice, still undetermined, incarnated itself in whatsoever had just saved him from impending slavery or from certain death, and restored the balance by coming to the aid of his impotence. Much later, when men had become possessors—when the organization of property had begun—the positive idea of justice took firm hold of their minds; but it began under the negative form, with the idea of injustice. This is, in all probability, the history of its humble first origin; far indeed from the lofty and poetic conception that pictures the coming of justice to us on the wings of the divine dove! . . . .

The truth is that justice, in the actual state of society, is a means at once of defence and vengeance. We who regard ourselves as a people of old civilization, experience a feeling of vengeful fury, when we confront the horror of a crime, in addition to the fear of detriment to ourselves by the perpetration of similar deeds: the task of the criminal magistrature is then to provide both security against and punishment for crime. In this I see nothing inhuman; but I think it would be more worthy of the time we live in to disregard the somewhat savage idea of vengeance, and to confine ourselves to the

idea of preservation. In the main, the majesty of the magistrature could not but gain by this serene attitude, which would have the farther advantage of bringing it into agreement with science and philosophy, which are not to be neglected.

4.

"But," it will be asked, "whither would you lead us by such theories?"

These doctrines do not lead to any violent revolution in morals; it is the characteristic of scientific solutions not to be radical, but progressive, and not to proceed "by leaps and bounds," but by hardly perceptible transitions, after the fashion of Nature. The French school, in particular, manifests extreme moderation in the application of its criminalist doctrines.

The Italian school, which is more positive, more absolute, tends toward the denial of either hierarchy or degrees in responsibility. The greater number of the savants who constitute that school hold that every man who commits an offence or a crime has a diseased brain. You have killed; then you are without moral health. You have brought to the commission of the deed the utmost cunning and, to all appearance, the entire liberty of spirit; that does not prove that you were free, because the most confirmed and proven madmen appear reasonable, and, besides, I regard you as a born criminal; your anatomical constitution condemns you to be an evil-doer. But your crime is appalling, and we cannot do otherwise than inflict upon you a penalty proportionate to the horror with which it inspires us. From these

motives, to our great regret, you shall have your head cut off."

This view is not either illogical or unsound. It does homage to the modern doctrines, and safeguards the ancient custom. It has even a stern grandeur: heredity is substituted for the antique fatality pursuing irresponsible beings. It is a sort of lay version of original sin. Let us, however, beware of admiring it too readily. We shall presently see for what excellent reasons French criminalists refuse utterly to admit the theory of the born criminal, and why it is that they cannot prevail upon themselves to place all delinquents upon the same footing of irresponsibility.

Philosophically speaking, the French school is agreed that the words "free will" are words devoid of meaning: it holds that a bad action is not the result of a choice expressly willed by us, but the consequence of an impulse insufficiently restrained by an infirm will. But, practically, we find ourselves confronted daily by facts which differ so widely, that in truth it is impossible to measure them by the same rule. It is right, therefore, to admit a hierarchy of intentions, and degrees in responsibility, in proportion to the more or less of premeditation, previous deliberation, in the mind of the culprit. Thus it is that the words total irresponsibility, entire responsibility, mitigated responsibility, although they are, philosophically speaking, hardly admissible, are of practical necessity and in current use.

Let us consider a few examples.

An epileptic, suffering from a masked attack, starts off walking along the high-road, and two days later he

awakes in a strange place, without knowing how he has come there. On his way he has set fire to a farmhouse or killed a wayfarer. He knows nothing at all about it, and when he is overwhelmed with evidence against him, he does not understand that he is accused. That man is absolutely, indisputably irresponsible.

Again, a drunkard in a state of *delirium tremens* murders his wife because he sees her under the appearance of some monstrous beast about to devour him. Or, yet again, a furious madman kills his keeper. What can be inflicted upon him except the strait-waistcoat?

These three murderers cannot be compared with a man who, with entire liberty of spirit, apparent if not real, plans his crime leisurely, calculates all the probabilities, intends to murder, and kills in order to steal more easily. No one will be satisfied by his being simply incarcerated in a lunatic asylum. God alone knows whether, in reality, the one was more free than the others to do good, or to act ill. But, with our actual way of looking at life, we cannot but make a difference. One of these murderers inspires us with greater horror than the rest, because he has deliberated, and, having no other means of guiding ourselves, we are content with that.

One day, a policeman notoriously given to drink, having fallen asleep in his room in a state of intoxication, was awakened at daybreak by a terrible vision. He saw a locomotive enter and rush at him vomiting flames and sparks; he was frightened, seized a hatchet used for splitting wood, and struck at the locomotive with all his might. The supposed engine was simply one of his comrades who

had come in search of him on a matter of business. The man was killed on the spot. Justice intervened. The magistrates, of course, found it difficult to believe in this hallucination; it appeared to them a ridiculous invention, a clumsy lie. The doctors were of some utility in informing them that similar hallucinations are common in *delirium tremens*. It will be admitted that irresponsibility is indisputable in this instance.

In the case which I am about to relate it is much less manifest.

Some years ago, a lady, very elegantly dressed and with all the air of good society, went to one of the great jewellers' shops in the Palais Royal, selected a superb rivière of diamonds, and said to the jeweller in the most natural tone,—

"Will you send one of your shopmen whom you thoroughly trust to my house with me? I must show this ornament to my husband before I finally decide upon taking it. The shopman will bring back the money or the jewels, according to whether my husband will consent or not."

This appeared very reasonable, and the lady, escorted by the shopman, proceeded to the residence of the celebrated alienist, Dr. Legrand du Saulle. She left the shopman in the waiting-room, taking the diamond rivière to show to her husband, entered the doctor's consulting-room and spoke to him as follows:—

"Doctor, I have left a relation of mine in the waiting-room who is suffering from monomania. I have come to consult you about him. In his atacks he imagines that he is a jeweller's shopman, and he loudly demands

restitution of a rivière of diamonds which he believes a lady has stolen from him. As the sight of me excites him very much, it is better that I should not be present at your medical examination. See him; I will go away now and return in an hour to learn what you think of him."

Legrand du Saulle bowed, the lady retired, and the young man was shown in.

He looked about uneasily for the customer who had the jewels, and demanded the sum of money or the diamonds. The doctor, forewarned, smiled indulgently, and began to question the patient according to rule. The unfortunate shopman, who could not make out what he meant, insisted more strongly, making a great outcry. Legrand du Saulle strove to quiet him, still pursuing his idea, questioning the poor fellow upon his personal and hereditary antecedents. It was with the greatest difficulty that he was convinced of his mistake; when the truth was known, the thief was out of reach of pursuit.

Can such a woman, concocting such devices, be truly regarded as irresponsible and treated as a sick person? She was assuredly off her balance, "cracked," but the cunning with which she appropriated other people's property forbids us to class her with the incendiary or the drunken murderer whose respective cases I have just quoted. And the doctor-lawyer ought to say, "responsibility entire or hardly mitigated."

This is but an expedient, but why not adopt it, for the moment, at least? Herein is opportunism, and we shall have to employ that for a long time yet before we come to putting in practice the only physiologically and

philosophically true doctrine, the formal negation of free will. For this humanity is not ripe.

Now, I acknowledge that I understand the embarrassment of a magistrate or of a jury when an expert makes answer: "Mitigated responsibility."

You say that such a man is completely irresponsible; we place him in an asylum, in the criminal lunatic ward. Another man seems to us to have committed a crime in a state of perfect sanity of mind; we shall condemn him to the maximum of the prescribed penalty. But what punishment shall we inflict upon the hysterical accomplice in the Gouffé affair, of whom we cannot tell whether her wickedness is unspeakably revolting or her unconsciousness absolutely complete? Mitigated responsibility, say you. Where ought she to be placed? In a hospital or in prison? M. Magnan has answered this difficult question by calling for the creation of hospital-prisons, mixed houses for these intermediate cases, and that is, I believe, the only solution. Because it is costly it will be tardy, but it will be forced upon us in time.

In the meantime it cannot be too strongly impressed upon highly intelligent and benevolent magistrates—like that First President [1] who, in 1895, took an active part at the Congress of Alienists and Neurologists—that it is impossible not to be struck by the intimate relation between crime and mental disturbance at present. We are constantly discovering unsuspected morbid conditions, and we are now constrained to give the name of disease to hitherto ill-observed or ill-understood phenomena.

In connection with this matter I am about to quote the

[1] M. Delcurrou, First President of the Court of Bordeaux.

strange adventures of a man who has been a celebrity in the world of savants ever since my confrère, Dr. Tissié, recorded the case in his inaugural thesis and in *Le Rêve*, his work on dreaming,[1] both published at the suggestion of Professor Pitres.

5.

My hero is named Albert D——. His life may be briefly summed up by stating that he has been in prison thirty times, that he has been condemned to three years' labour on public works, that he has narrowly escaped being hanged . . . . and that nevertheless he is a good, honest man. Not only has he not conspired, or killed, or stolen, but he has not any vice whereby his fellow-men may suffer. He is a most industrious workman, a loving and respectful son, a good comrade, a soldier who has never been punished, a most kind husband; he does not drink, he is extremely reserved with women, and nobody but himself has ever had to complain of him. The only, or almost the only, crank of this poor fellow is his craze for travelling. He is the double of the Wandering Jew of the old legend, the wretched being who is forced by a mysterious power to march on mechanically along the highways of the world for ever.

His craze takes him by fits and starts, after a few months' respite. He has to go, and he goes. He forsakes his work, his family, his wife whom he loves and whom he leaves in distress. And then he finds himself in some strange place, is ashamed, and dares not return.

He does no harm on his passage; he is not epileptic,

[1] J. Alcan, publisher.

but merely a weak-minded, rather hysterical person, easy to be hypnotized, who makes suggestions to himself without the aid of others, and becomes the slave of this strange craving for wayfaring. He bears no grudge to life, which has knocked him about so remorselessly; he is neither angry nor vengeful, he bears himself with gentle melancholy and a somewhat fatalistic resignation; for he is at once very dull and singularly gifted. He is the son of a workman; he learned to read in his term of military service only, and he cannot write. But his observation of things innumerable all along the roads he has travelled is strangely sagacious.

Sometimes, in the course of the story of his life as he tells it to me, he will draw an astonishing verbal caricature of some remarkable personage whom he has met, or it may be some strange wild landscape, which returns to him as though it were a dream, and he describes it as might a De Quincey or a Baudelaire, that same Baudelaire who has written twice over, in prose and in verse, an *Invitation au Voyage*. When a mere child, Albert questioned travellers respecting distant towns and what was going on there.

"At the age of twelve," he said, "I was apprenticed to M. L—— at Bordeaux; I quitted the town suddenly. It appears that some neighbours had seen me walking to and fro before the door for a long time; they told my father that I had set out in the direction of Arcachon. My brother started immediately in search of me, and found me on the high-road, having hired with an umbrella seller with whom I must have taken up on the way.

"'What are you doing there?' said my brother, tapping

me on the shoulder. This gave me a kind of shock, and I was much astonished when I was told that I was the apprentice of a pedlar. My brother brought me home, where I *heard tell* of an inheritance which my father was to come into at Valence d'Agen. A month afterwards I found myself in that town without knowing how I got there. A friend of my family was so kind as to send me to Bordeaux."

Thenceforth his life was one eternal journey, with intervals of a few months of quiet and assiduous work in some town or other.

He is to all appearance quiet, and believes himself to be cured. Then there comes a night when he has a dream, or some one mentions a geographical name in his presence. He is disturbed; he has terrible headaches; he works badly and eats little, he is full of whims, walks up and down like a caged animal, then off he goes, by rail if he can, on foot if he has not money, and he comes to himself, after some hours, all astonished when the name of a station which he does not know is called out. Thus it was that he awoke one day on a bench in the Gare d'Orléans, in Paris. He was asked how he came there. He knew nothing about it. He was taken to the depôt, where he remained fifteen days without uttering any protest. Information having been received by the police, he was sent back to Bordeaux by stages. All went well for some months, and then, one fine day, he found himself at Barbézieux. He was locked up for a few days as a vagabond, and then again sent home. His parents sent him to Paris, being persuaded that the great city would attract him irresistibly. He

was very happy there, worked steadily for a fortnight, then set out again. He was imprisoned at Vitry-le-François, at Lyons—where he went into an ecstasy at the sight of the funicular railway—and at Annécy. He was again sent to Bordeaux; and there, heartily ashamed of himself, he worked at the gasworks like the best of the hands. This lasted three months, and then he found himself at Pau, in the Place de la Préfecture. And he had made this new journey by the following stages: Tarbes, Marseilles, Algiers, Mustapha Supérieur, Blidah, La Trappe de Stawali (where he saw rose-water distilled), Algiers, and Marseilles. At Aix-en-Provence, after he had endured great poverty, he was put in prison because he had no papers; at the end of a month he was discharged, and he returned on foot to Bordeaux. One of his brothers was about to be drawn for the conscription. Albert D——, being well aware that with his travelling mania he was incapable of earning a livelihood like other people, generously resolved to enlist in his brother's place. He was sent to the 127th regiment of the line, in garrison at Valenciennes, then to Condé.

But the inaction of barrack life weighed upon him. He was a good soldier, he had good marks, but he deserted without motive, and passed the frontier with his arms and clothing. At last he had space enough. At Tournai, Bruges, Ostend, Ghent, and Brussels, he found no work. So much the more reason for going on, and he went on to Holland, in hopes of getting himself shipped to India. During the severe winter of 1879, he tramped to Amsterdam, living on alms. He had a companion, who dragged himself along the roads, but Albert D——, who enjoyed walking, would go on five

or six kilometers in advance, and then return, for he would not forsake his friend, who died of exhaustion on arriving at Amsterdam.

Albert was imprisoned and brought back to Brussels, but Vienna attracted him, and he set off for Vienna, feeling sure that he could get work there. This time the way was long, his poverty was terrible; he was glad when he was put in prison, because he was fed without having to beg.

After many adventures, he reached Vienna by rowing on a timber raft coming down the Danube. A Bordeaux man, whom he had met by chance, gave him employment on the gasworks at Tabor. A month afterwards he came to himself at Buda Pesth. The French Consul sent him back to Vienna, where he was informed of the amnesty for deserters. On the 21st September, 1880, he re-entered his regiment. As a soldier, he has had only one punishment; on his book is entered: "for having slept out." But in reality, he was wanting to desert anew, to wander, to go elsewhere. One Sunday he fled, and for good this time. He carefully deposited his military effects with the Commissary of Police at Mons. Then he visited in succession Brussels, Liège, Aix-la-Chapelle, Cologne, and went up the Rhine. Here his narrative is marvellous, abounding in anecdotes, in enthusiastic descriptions of the hôtels-de-ville and the Gothic cathedrals, the castles like eagles' eyries, the bridges over the great river, the historic recollections; all this charmed him, and he has retained a vivid and very precise remembrance of the whole. Near Friedrichsdorf, he met the wife of a burgomaster, and he draws a portrait

of her as strong and as droll as a Daumier. Again he is in Vienna (where he works assiduously under his patron from Bordeaux), then at Prague, at Leipsic, at Berlin, at Posen (where his poverty was extreme), at Warsaw, and at Moscow.

At this point the story is complicated by a tragi-comic episode.

He arrived at Moscow shortly after the assassination of the Tsar. At a moment when he was admiring the statue of Peter the Great, like a conscientious tourist, the police laid hands on him. He had no papers. He was arrested as a Nihilist. He remained for months in prison, waiting to be hanged. Fortunately, his innocence was recognized at the last moment, and he was taken, with other prisoners, to the Turkish frontier, under a strong escort of Cossacks. The long journey, by stages, was not displeasing to him, although he had to go to the south, and the north was his point of attraction.

From the Russian frontier he went alone to Constantinople, remained only a day or two in contemplation of the Bosphorus, and then got himself sent to Vienna, where he took to working once more. But one day he witnessed the march past of the Swiss riflemen, and became possessed with an urgent desire to visit Switzerland. He passed through Klostenburg, Munich, Stuttgart, Carlsruhe, Strasburg, Mulhouse, Geneva, and Basle. There, being reduced to great poverty, and finding himself so close to France, he informed the Consul that he desired to give himself up as a deserter.

He was sent to Lille to be tried for desertion. The military doctors, being little used to handling diseases of

the nervous system, naturally refused to regard him as a sick person. The officers who tried him took him for an ordinary deserter, and he himself dared not tell what had induced him to go away. A lawyer, appointed by the Court, vaguely pleaded irresponsibility. Albert D——, deserter ("récidiviste"), was condemned to three years' labour on public works in Africa. His conduct there was so exemplary that he was pardoned after he had worked out half his sentence.

He returned to Bordeaux, found a place in a factory, and fell timidly in love with a young girl whom he hoped to marry. The peaceful stay-at-home pleasures of the domestic hearth were to be his! He was weary, he thought he was cured. The betrothal took place; Albert was very happy, and lo! one morning he awoke in the Verdun railway station. He was quite truly and seriously in love, and yet he had left his *fiancée*, without knowing what he did! He was brought back to the land of his birth, but it would no longer have anything to do with him! And then, broken-hearted, he entered the service of Professor Pitres, where I knew him. His judges had not made any minute inquiry into his case, but the physicians took it up. Albert D—— tells the truth, and there is nothing in his narrative that cannot be proved. In every country which he claims to have visited, traces of him have been found. His military record has been reconstituted, and his name is inscribed on all the gaol registers, in all the consular offices, in Germany, in Belgium, in Switzerland, in Holland, in Russia, in Austria. Letters are in evidence from M. D——, who employed him in Vienna over and over again. Besides,

his narrative bears the unmistakable stamp of accuracy, and his descriptions do not admit of doubt.

We have seen him set out from the hospital on his sudden expeditions. We have seen him taken with the fit, awaking after a dream, with heavy head and red face, wandering about the passages in the hospital, before he runs away into the country. Nothing can exceed his grief and despondency when he returns to the knowledge of himself.

The force that takes hold of him is irresistible, it possesses him, and drives him on. He obeys it, he goes forth either with the futile hope of earning a little more elsewhere, or for nothing at all, without the semblance of a pretext: once on the road, he breathes more freely. To satisfy him, he must make at least seventy kilometers per day. He goes on, on, under rain, snow, storm, famished with cold and hunger, subsisting on alms, towards the north, by choice, as though drawn by a mysterious magnet. And he is always clean. His great solicitude is constantly to cleanse his clothes from the dust and mud of the high-roads.

Were it not for the investigations of ambulatory automobilism, by Professor Pitres, M. Tissié, M. Pierre Janet, and Professor Raymond, this unfortunate wanderer, an incorrigible gaol-breaker, would have inevitably ended by being condemned to penal servitude for life.

And how many others are there whose history is in all points analogous to his?

6.

The man who has contributed most largely to the dissension between magistrates and doctors on this inexhaustible question of the responsibility of criminals is assuredly the author of that theory of 'the born criminal' which made so much noise in the world and spread the celebrity of the Turin school far and wide. I shall now try exactly to explain that theory, which Lombroso himself has been obliged to renounce, and what the present ideas of the most eminent specialists on the genesis of crime are.

The problem is a very simple one, according to Lombroso, a writer of humorous and ill-regulated genius at once chaotic and simple. He was one of the first, if not to establish, at least to state in books, this fact that the great majority of assassins, thieves, and prostitutes bear physical traces of degeneration ; he has collected statistics for his work and set them forth in full, which prove how frequently malefactors, epileptics, eccentric persons, or lunatics produce offspring almost fatally destined to "turn out badly." And from this he has concluded that certain men bear in themselves, on coming into the world, not only bad instincts and the germ of evil, but the material impossibility of being otherwise than criminal. Lombroso holds that there exists an anatomical structure proper to the malefactor, a physical conformation, a corporal manner of being which implies a moral manner of being, the necessity of killing or stealing one day or another. This is a *fatum*, an unavoidable destiny, and, in default of dying accidentally before the opportunity for the

crime arises, the human being cast in this mould must commit the deed.

As it happens to most minds of simple and radical tendencies, Lombroso's renown grew and spread with quickness which presaged the brief duration of his vogue.

For a long time past he has found none but adversaries in France and Germany. And I do not speak of those good people who condemn his views on crime altogether as deleterious and calculated to sap the foundations of society, as Joseph Prudhomme said. Savants, to whom nothing that is scientifically true can appear immoral, regard the matter from a totally different point of view. They regard the hypotheses of Lombroso as regrettable, solely because they do not correspond with the reality of facts, because, in truth, an anatomical type of the born criminal cannot be found, and also because every-day observation shows us plainly that whatever evil a man may derive from his origin and his heredity, the circumstances that surround him, the society in which he lives, the air he breathes, the examples before his eyes, the notions taken in by his brain, are constantly distorting and re-forming his personality.

Let us take the example of a person who is going to commit a theft with premeditation.

We say in such a case that a deliberation takes place in the domain of conscience ; but it is rather a drama in action that is performed upon the little internal stage which we carry within us, and which we have baptized with the too lofty name of " the field of free will." Recent or former sensations, mental pictures, are the actors in

that theatre. And observe how they come on the scene by the 'garden side,' each having its personal intensity, its degree of vitality, its more or less vehement tendency to become an action, a gesture, an accomplishment, to go out 'by the courtyard side,' where the finale is to occur.

First comes the primary impulse, the temptation, as the Church says, the image of the theft, of the easy snatch at a thing within hand's reach, readily conceived in the hereditary brain of this son of a drunkard or a neuropath. And with it there comes also the apparition of poverty in the past, the vision of well-being in blessed idleness.

But another actor intervenes, the image of the gendarme bringing with it that of judges, gaolers, and the slow, dark prison hours. Immediately, between the two ideas, that of theft and that of punishment, a hand-to-hand battle begins. For a moment the bad impulse is thrust back and disappears from the stage. It will soon return, however, stronger than before, reinforced by the craving for imitation, the remembrance of thefts committed by companions in idleness, friends of the barrier-balls or the drinkshop. Such an one has never been caught, such another has daringly done so many forbidden things, he has so boldly braved the law, that the newspapers chronicle his prowess, his comrades admire and recognize him as their chief, and women contend for the pleasure of serving him humbly, indeed, of toiling hard in his service.

This time the battle is more keenly waged, more decisive. In vain does the faint notion of some divine justice come on the stage—the catechism is so far off now!—in vain the dream of human justice, the fear

of failure, reluctance to change one's life, that heart pang which we all feel at the verge of a new departure. Sultry or stormy weather, the smile of a friend as he shrugs his shoulders at such wavering, perhaps a "drink" too many have excited the mind to paroxysm pitch. Now, the impulse, the vision of theft becomes precise and masterful, it crushes every salutary idea in its powerful grasp, and, freed from hindrance, takes its triumphant course.

Thus it is that a resolve is reached and the evil deed is done.

In that episode of the struggle for existence, as indeed everywhere, the stronger has beaten the weak, and the evil impulse has won solely because we have been educated in inconsistent ideas. What becomes of the anatomical, immutable type of the born criminal, in the face of all this? Is it not evident that our surroundings, that our education can overcome what heredity has entailed upon us of the evil and the hideous, and that they do effect that conquest in the case of all cultivated men? What should we, the civilized ones, be, without the example of our parents and the lessons of our teachers? One of the most important, most upright men among the great manufacturers of this period began at thirteen years old by stealing two silver spoons at the house of my grand-uncle, M. de la R——, in Poitou, where he was a farm-boy. The cerebral excitement that once drove him to ill-doing aided him afterwards to become a powerful rival of English manufacturers, and his charity is sufficiently widespread to make his first fault weigh but lightly upon him.

We know how all-powerful is the desire of imitation,

and how clearly M. Tarde, head of the department of penal statistics at the Ministry of Justice, and more recently Dr. Paul Aubry (of Saint-Brieuc) have demonstrated the fact of its constant intervention in human affairs. Properly speaking, the brain is nothing else than a machine for the imitation of that which it sees, the reproduction of that which our senses have just perceived.

In addition to irritability and the perpetual tendency to paroxysm, those who become criminals are born with a lack of mental energy, an inconsistency in their personality which places them constantly at the mercy of their surroundings. They invariably do what has been done in their vicinity and under their observation. Evil company, the sight of a play in which honest people are killed on the stage, reading about sanguinary crime, the vile promiscuity of prison life, the spectacle of public executions—these things first make them wish, and at last make them feel absolutely obliged, to commit crime. But their minds are equally accessible to opposite examples; they are capable of profiting to the utmost by contact with noble minds, by civic education, by religious morality, by instruction in pure and elevated art. All these may contribute to make them persons to be utilized for the common good instead of malefactors such as they might have become.

The efforts of the government of the French Republic to multiply schools all over the country and to spread primary instruction have not, it must be admitted, produced such results as we were entitled to hope for in the matter of criminality. No doubt it is a law of physiology that the more a brain is furnished with knowledge the

less impulsive it is; solid instruction is, in itself alone, a powerful curb to bad instincts. But let us look facts in the face. Statistics are there to prove that murder and suicide have increased terribly among us during the last twenty years; while elsewhere, in England, for instance, some of the prisons have been closed for want of prisoners. Sir John Lubbock has expressly stated this at one of the sociological meetings in London.

This growth of evil in France, and the decrease of crime in England, may be placed respectively to the account of the evolution of alcoholism in France which is steadily going on, while powerful and numerous temperance societies are at length reducing it notably in England. But we must not leave out of consideration the evolution of the religious idea, which we have discarded as useless and unfounded, while the English, notwithstanding the multiplicity of their sects, have always been of one mind in endeavouring to root the religious sentiment in the mind of childhood. Have we a real right to congratulate ourselves highly on the lay system of our schools? Has it not been a little too hasty, and have we not vainly imagined that the philosophical level of the people was going to be raised all of a sudden by the single fact of the proclamation of the Republic and the suppression of the 'tyrant'? The fear of eternal punishment is a potent curb; it is a notion, perhaps false, but of great practical utility in suppressing evil impulses and desires in the majority of souls, which are simple and credulous souls. Catholics having made a political weapon of their faith, Republicans, in their turn, have armed themselves with scientific irreligion,

and have used it in the service of their cause; this was inevitable, but none the less to be regretted. The greatest and boldest minds, Littré, Renan, and their fellows, have regarded the spreading among the vulgar of ideas which require some preparatory culture for their due comprehension with surprise and disquiet.

However repugnant it may be to teach that which we do not believe, and to tell falsehoods to youth, it may be well to return to the old saying which has been so much ridiculed: the people must have a religion, a religion regarded simply as an idea which makes for morality. If we recall and reflect upon what has been said concerning the battles that are fought in the mind of a man on the brink of crime, we shall be able to realize that great help is to be found in the fear of punishment, or the firmly-rooted hope of recompense in the life to come. And thus it is that modern savants, who have lost faith, and who cannot believe in human free will, approximate, after all, to the teaching of the Church.

7.

Heredity is only a predisposing cause of evil, something like the old original sin of the Catechism which grace alone has the power to overcome. We have not the secret of grace; but we know how a brain may be recast by the aid of hygienic moral treatment, by the proposing of noble examples to meet that imperative need of imitation which besets the 'degenerated' to so extreme a point. But, we shall be asked, since you know that certain kinds of heredity predsipose to crime, could not you, modern physicians, utilize your new knowledge in preventing

individuals who are born wicked from becoming assassins or thieves? What is the advantage of discussing their possession of more or less free will, when the harm is done? Since they are mad, shut them up beforehand; if they are sick, treat their disease in its first stage. And truly we do come in very late with all our science; our diagnosis ought to have been made earlier. No doubt we shall arrive at that some day. But how far we are from it! Do you know what has been done, and was still being done, quite recently in New Caledonia? On the pretext of the interests of morality, male and female convicts were married; a proceeding which has given us a large number of their offspring whose natural instincts surpass all that can be imagined in vicious malignity. Since our present laws do not allow us to throw mentally-deformed children into the Seine, as they used to be thrown into the Eurotas, let us try "mental orthopædies," as M. Strauss says; let us multiply refuges and asylums for vicious and ill-disposed boys, and, if early education has no effect upon them, let us, instead of turning them loose at their majority, create secure abodes for them, or send them to vent their 'impulses' on the Tonquinese or Malagasy pirates.

My friend M. Paul Adam, a writer of romance who is eloquent in other ways as well, urges, in a series of remarkable articles published in *Le Journal*, that our colonial troops should henceforth be recruited among the convicts, who would no longer be maintained at our cost in French prisons, but sent to the regions of deadly heat and intermittent fever, where their natural tendency to murder and pillage might be utilized and turned into war-

like qualities. Upon this there was an explosion of indignant protest in the press: "Respect for the flag!" said the writers; "the soldier is, by definition, a noble being: to desire to place the criminal, the outcast of society on his level, to give him the criminal for his brother, is to degrade him scandalously."

The project of M. Paul Adam does indeed appear to me difficult of acceptance. But another, in the same order of ideas and less repugnant to the mind, may be conceived.

Let us look fairly at the data of the problem.

In spite of the vast amount of fine phrase-making that is invariably indulged in when the Chamber of Deputies is called upon to vote a colonial expedition, every one of us knows quite well that these distant expeditions are, in reality, "business wars." Outlets for commerce are demanded and created, and this is reasonable; I am one of those who believe in the social utility of a colonial empire and the re-awakening of our old spirit of expansion. These wars are not to be compared in any way with those in which we have defended the soil of the mother-country hand to hand. For two sorts of wars, let us then have two sorts of troops.

After all the atrocities and follies of the Madagascar affair, it is the universal conviction that besides the French army, which we have no right to deplete and to expose to marsh fever, we ought to have another less valuable army which the nation might expose to the severe climates, malign microbes, and native treachery of savage lands without too poignant maternal anxiety.

It will be agreed that the citizens of an old country

like ours are not all equally precious. Setting aside criminals of whom we cannot make regular soldiers at any price, there are the "mauvais sujets," the hot-headed, the stubborn, those who are tolerably certain to turn out badly at some time. These "bad lots" are the torment of their families and a constant danger to society; we should not regret to see them, when subdued by discipline and elevated by arms, engage in the toil and strife of a war in which the actual fate of the country is not at stake. The foreign legion, which has done so much good service, is on a comparable moral level, and the suggested recruits will be adversaries sufficiently worthy of the Black Flags, the Touaregs, or the Hovas; these are a very bad lot after their own manner. The making of a colonial army with the "grain" of murderers, thieves, and anarchists, in order to prevent them becoming all these, ought to be in our power to realize. But how are we to recognize them before they have become criminal? Who is to divide the tares from the wheat? The answer is not easy; I fully believe, however, that we shall succeed in making that selection, when a clear idea of the mind of these "mauvais sujets" has been arrived at.

I have studied some at the hospital, some in the poor families whom it is at times my duty to attend, some among the wealthy and high-born. They are, I may say always, the sons of insane persons, of drunkards, epileptics, and pronounced neuropaths. They are born with a blemish, and they live in a state of perpetual irritation of the brain. In everything that is in the intellectual domain they are indolent, rebels against education, but lovers of adventure, quarrelsome, ready to fight, eager to expend a

great deal of strength in doing harm. They are often and easily made angry, and are sometimes extremely violent. With persons whom they know intimately, with whom their nervous system is familiarized, their parents, for instance, their brain will reach paroxysm pitch at the slightest opposition; they are particularly ungovernable on stormy days when there is electricity in the air.[1]

A short time ago a mother came to tell me that her son —he is seventeen years old—had threatened her with a fender-iron, brandishing it close to her forehead, because she had requested him to come in every night a little before twelve o'clock.

Children such as these are born with the craving to destroy, to injure or annoy all around them, to torture animals. I know one who amuses himself by pulling out the teeth of little kittens. With this they combine disconcerting fits of nervous tenderness. Any mitigated authority exasperates them; only persons stronger than themselves can subdue them. They admire those who enforce respect upon them; they often make very docile soldiers while serving their time with the regiment. It is sooner or later, when their life is free and they are in contact with others of their kind, that the evil within them breaks out and they commit crime.

Lombroso calls them "born criminals," but we have refuted that doctrine, against which all modern psychologists have risen in protest. A man is not born an assassin or a thief. He simply comes into the world with an excitable brain, subject to vehement impulses, swift to anger, either fierce or sullen, inclined to paroxysms. The

[1] See the chapter of this work which deals with Anger.

circumstances of life will turn this original brute-likeness either towards murder or towards the fierce valour of the *condottiere*.

In other times, when war was frequent, almost constant, these people became soldiers, and their need of violent deeds, their love of pillage, their superfluity of energy were expended upon their enemies. We have now passed twenty-eight years without a European war; very probably this is one of the chief causes of the increase of criminality; the other is alcoholism. The people drink too much; drink is a fertile source of brain irritation; they no longer fight, and their irritation does not find its lawful vent. Murder becomes relief of tension in such cases.

Nobody would entertain the notion of making a European war expressly for the purpose of soothing the nerves of these individuals; but expeditions to distant lands might be of public utility from this point of view. Since it is inevitable that certain men shall have an excess of nervous energy which goes to the head and must be dispersed, let us endeavour to utilize their excitement for the service of the country, let it be employed to defend us from those brigand tribes, fierce, cunning, and faithless to their oaths, with whom we are forced into conflict in our distant colonies.

Now that primary instruction is obligatory in France, these children who are predestined to violence go to school like all the others. Consequently, they are known. Might not the national school-teachers be instructed to report those who are cruel to animals, treacherous to their comrades, unruly with their parents? A competent and impartial

doctor, acting as authorized inspector under the Minister of the Interior, would compile impartially, and needless to add, confidentially, the hereditary and personal report (dossier) upon the "mauvais sujet." With a view to taming him, permission from his parents should be obtained to place him in a penitentiary, or rather, he should be entrusted to one of those admirable institutions for vicious or perverse children of which M. A. Guillot, of the Institut de France, 'juge d'instruction,' is one of the most eminent organizers.

If it be evident that nothing can be done with him, that he cannot be made ordinarily fit for the life of liberty, his masters might speak to him, when he had reached the age of twenty, in this wise :—

"The present hour is quite decisive for you, young man. If you enter upon the career of ill-conduct and bad company which seems to await you, you will be in prison before a year is out. But there is a better lot for you. The State gives you a smart uniform, very good pay, and sends you to Algeria: you will go thither in a special battalion, under discipline which will tame you very quickly, to be hardened against fatigue, and acclimatized to the heat of the sun. You will cut roads, build railways, do a great deal of marching, some fighting betimes: thus your sick nerves will wear themselves out while your health will be strengthened. Later on you will be utilized in more inclement climates, in Tonking, on the West Coast of Africa, in the Island of Madagascar, and you will do well in that place where the twenty-years-old troopers of our 200th died miserably. You will be brave on the field of battle, and you will

gain nobility of character by the consciousness of your own courage. And when you are forty, and have been restored to mental balance and good sense, you will go to a colony, and become the parent of worthy sons in a new country, where no one will care what you may have been. And you will be quite as worthy an individual as those citizens of free America, who come from no one knows where, are wealthy, no one knows how, and who, nevertheless, make sufficiently comfortable fathers-in-law for impoverished gentlemen."

This is a project with a long look-out, and difficult to realize in more than one portion of it, I readily admit. But I remain convinced that, in a quarter of a century, the evolution of morals, the natural course of things, will lead the European peoples to recruit their troops for distant expeditions in this way. I do not think there is any more reasonable and certain means of preserving the army of France in its integrity, of securing colonial forces adapted to their functions, and of decreasing murder, suicide, and anarchist crimes among ourselves. Modern medical psychology teaches us what there is in the mind of a future malefactor. It shows us that the man is by no means predisposed to crime, but that he has an excess of nervous excitability which is capable of being diverted from evil. Physiologists and psychologists hold, like the Church, that it is better to prevent than to punish, and they conclude, therefore, that the child ought to be the foremost consideration of the moralist and the man of law. Science teaches our legislators to sort out and separate children who are born with bad instincts, with an evil heredity, from the others; to occupy them-

selves individually and zealously with these; to employ every means capable of restraining their impulses, even including the religious, although its employer may not be a believer, and implanting ideas in their minds; and if this fails, to endeavour to send these untamed animals to swell the colonial army, where their craving to do harm will be usefully appeased. Such is the programme that will, I trust, be substituted by degrees for the actual methods of a somewhat unwise repression, which is insufficient for the preservation of society.

CHAPTER III.

DOCTORS AND LITERATURE.

Writers and tobacco—Hygiene for men of letters—The better class of "degenerates"—Talent and madness: Moreau of Tours, Réveillé, Pârix, Lombroso, Max Nordau; the "Inquiry" of Dr. M. Toulouse—A medical critic—The brain of a critic.

In 1888, a company animated by zeal for the public good and ardour for the amelioration of the human race, styling itself, "The Society against the Abuse of Tobacco," put forth for competition the following theme:—

OF THE EFFECTS OF TOBACCO ON THE HEALTH OF MEN OF LETTERS AND OF ITS INFLUENCE ON THE FUTURE OF FRENCH LITERATURE.

When this vast subject was presented to me I was perplexed. To enumerate the evils that may be wrought in the particularly delicate organism of the artist or the writer by the immoderate use of tobacco, might not be so very difficult, and my relations with the literary world would largely assist me; but to prophesy the future, to predict the depth of the ruin into which intoxication by nicotine may lead future generations of romance writers and poets was a far more onerous task.

I had just been received as house-surgeon; the offered

prize (1000 frs.) was a temptation to me: the love of lucre prevailed. I competed, and I gained the prize. I can even recall to mind that the excellent head of the Society, when he came in person to my hospital room to announce the good news and congratulate me, found a good many half-smoked cigars, and one of them still alight, in the ash-tray! The worthy man dissembled his wrath, but no doubt he breathed a prayer to heaven for my just punishment, for, a few months afterwards, I was attacked by a troublesome neurasthenic dyspepsia, and had to give up tobacco by the doctor's orders.

I still have the essay which I wrote on the great tobacco question, and I have decided on giving the essence of it here, although it refers to but a very small corner of the vast relations of medicine and art. I was perhaps rather sceptical at the period of that paper; I am now more convinced than I was then that neurasthenic persons—they are numerous among literary people—keep up and aggravate their malady by the use of tobacco. Besides, the various opinions which I have accumulated in that essay give it value beyond that of my own view. Perhaps a severe critic may justly think that, here and there, a fact, indecisive enough in itself, is interpreted in the sense imposed upon me by my desire to win the prize: there is no moralist who has not fallen into system and into excess.

Without further preamble, then, let me state how I have endeavoured to extract the opinion of the dead from their own works, and to make the living speak.

The most curious particulars respecting the lights of literature in the first half of this century have been

gathered from the "study" of Balzac by Théophile Gautier. The author of *Le Capitaine Fracasse*, who was himself a smoker and consequently partial, writes as follows on the horror of tobacco so frequently manifested by Balzac:—

"Was Balzac wrong or right? Is tobacco, as he asserted, a deadly poison, and does it poison those who are not besotted by it? Is it the opium of the West, which puts will and intelligence to sleep? This is a question beyond our solving; but we propose to put together the names of certain celebrated personages of this century, some of whom smoked and the others did not. Goethe, Heinrich Heine—strange abstinence for a German—did not smoke; Byron smoked; Victor Hugo and Alexandre Dumas did not. On the other hand, among the smokers are Alfred de Musset, Eugène Sue, George Sand, Merimée, Paul de Saint Victor, Augier, and Ponsard; not precisely imbeciles any of them."

Let us now complete this very instructive list by some personal documents, and discuss it more closely.

Byron smoked and yet was a great poet, but he was also the most despondent of men, the feeblest of fighters, the most easily vanquished by life. He was himself a victim to all the wretchedness that he imputes to his heroes, and in reality one of the fathers of pessimism of the nineteenth century. Goethe used to say: "I hold three things in horror; the first is tobacco." And we see what powerful, dominating, godlike will was his, what serenity of life, what fully conscious work! It is true that he describes Werther, and knows how to depict despair, but he does this as a lucid, unmoved observer, who remains superior

to his creation, who soars above human woes. Heinrich Heine did not smoke: what a brilliant dreamer he was, how refined and heart-stirring a poet, how keen was his wit, almost French!

To what ever school they belong, romantic, realist, classic, naturalistic, symbolistic, or decadent, even though it be the school whose aim is only to amuse, all our writers owe their origin to four great masters, Victor Hugo, Balzac, Michelet, Dumas the Elder. Now, it is at least a singular fact that these men of predominant genius each and all abhorred tobacco.

Dumas the Elder did not smoke: how fertile and charming a writer he was! What a marvellous story-teller! What an indefatigable worker! What inexhaustible invention he possessed, and how his most extravagant tales abounded in intensity of life! Michelet did not smoke; his life-work is actually formidable in its accumulated knowledge; it overflows with genius; his reconstructions of the past swarm with life and make the reader feel as though he witnessed the events related to him. As for Balzac, the architect of that cyclopean monument which is called *La Comédie Humaine* professed a fantastic aversion to tobacco; he agitated against the government traffic in it; his books speak with great contempt of the personages whom he makes smokers; one whole chapter of his *Traité des excitants modernes* is a fulmination against tobacco. One sentence which serves as an epigraph to *Le Bulletin de la Société contre l'abus du tabac*, "tobacco destroys the body, injures the intellect, and besots the nations," is written by him. Categorical, is it not?

Victor Hugo, too, did not smoke. Théodore de Banville has written somewhere : " No one indeed had ever smoked in the house of Victor Hugo, peer of France. Here is an anecdote à propos of this. One evening at the ' Master's,' one of the guests, I think it was Villiers de l'Isle-Adam, was vaunting the beneficent effects of the cigarette upon creative imaginations ; the great poet protested : ' Believe me,' said he, ' tobacco does you more harm than good ; *it changes thought into reverie.*' " Victor Hugo capped this true and profound saying by recalling a passage in *Les Misérables* where he says, in reference to the reveries of Marius :—

" Too much reverie submerges and drowns. Woe betide him whose work is of the mind and who allows himself to fall from thought into mere reverie. He thinks he can climb up again easily, and says to himself that, after all, it is the same thing. He is in error ! Thought is the labour of the intellect, reverie is its pleasure. To replace thought by reverie is to confound a poison with an article of food."

Is not this wisdom itself ? These words would almost suffice in themselves to sum up the dominant conclusion of my little treatise. But let us resume the list that Gautier has given us revised and augmented.

Musset smoked ; and it has come to pass that his fame has lost its first lustre. The singer of Rolla is regarded now by many among us as the poet of women and mere youths only ; and then what a life, what a death ! In fact, his particular case is so much complicated by other abuses that it ceases to prove anything.

George Sand smoked, says Théodore de Banville, to

such an excess that without a cigarette between her lips she ceased to be an intelligent being. A morbid constitution, most unenviable!

An eye-witness asserts that Merimée perpetually smoked fragments of cigars, which he chopped up with a special penknife—this he never was seen without—and rolled in cigarette papers. Tobacco certainly did not prevent him from being a man of eminent talent; I do not venture to affirm that it had something to do with the sour temper of Merimée and with his sharp, dry, morose, and splenetic style, which marks so strong a distinction between him and his contemporaries.

Saint Victor was a great smoker; also he was not a man of action, was apt only at criticism, and always grieving, it is said, over his inability to accomplish a great personal work. Shall I quote Ponsard, who seems to me to have lost some of his prestige in the eyes of our contemporaries?

Gautier himself, with his marvellous talent, is revealed to us, in the *Mémoires* of the de Goncourt brothers, as above his work, indolent, apathetic, out of conceit with life, disconsolate at not being as he might have been, one of the two or three greatest men of his time.

Baudelaire, also a great smoker and a marvellous poet, has left us only two volumes, and these breathe only despair, proclaim the nothingness of everything, the eternal falsehood of all the paradises, even the artificial ones.

Poor Gérard de Nerval smoked a great deal, it is said; it would be hazardous to lay his wretched life and tragic end to the charge of tobacco, but it

is at least clear that the clouds he blew were not rose colour.

The case of our great Flaubert is particularly interesting. We know how slowly he worked, reconstructing his fine sentences over and over again, toiling for ten years over one novel. On one of the pages of the manuscript of *La Tentation de Saint Antoine*, which I have had an opportunity of seeing, the word "but" was struck out fourteen times at the beginning of a sentence, then finally replaced. This was in reality a malady of the will of the impeccable poet in prose, a malady which Maxime du Camp construed as a symptom of epilepsy; but it is in reality one of the ordinary symptoms of poisoning by nicotine. It is known that Flaubert smoked a pipe almost without cessation.

Théodore de Banville was a devotee of the cigarette, nevertheless he wrote the following lines: "The smoker cannot be either an ambitious person or a hard worker, neither, with very rare exceptions, can he be a poet or an artist. The cigarette is only dreaming and resignation, a deadly pastime completely useless."

Villiers de L'Isle-Adam writes in *L'Eve future:* "Tobacco changes manly projects into reverie."

Barbey d'Aurévilly, who never smoked, and to the last hour of his life retained the most perfect physical and intellectual vigour, says, in *Les Diaboliques:* "Tobacco lulls activity."

Lastly, we know that the Goncourts, at the hardest, most harassed period of their much-tried existence as artists at once proud and not popular, were in the habit of smoking big black cigars abounding in nicotine; according

to their Journal they were especially irritated and grieved just at that period by finding that their lack of success increased in proportion to their literary refinement. The brother who died latest, famous and admired by all, had been obliged to give up smoking altogether, by order of his doctor. On the other hand, there are cases, though less numerous, to set against those which seem to incriminate tobacco in their different degrees. Let us take, for instance, two of our leading writers—Alphonse Daudet[1] and Catulle Mendès smoke a great deal, but without any diminution of physical or intellectual energy as a result.

In addition to biographical documents and quotations borrowed at the libraries or collected in the course of literary conversations, I had received a certain number of letters from distinguished members of the profession of literature, which lend zest and interest to the question. I reproduce some of these signed by names belonging to widely different schools, Taine, Emile Augier, Jules Barbier, François Coppée, Emile Zola, Octave Feuillet, André Theuriet, Alexandre Dumas. M. Paul Bourget has also given me his views; but he has requested me not to publish his letter. I greatly regret this prohibition, for it is one of the most curious and instructive among my collection.

I shall give first place to the neutral letters and those favourable to tobacco.

"I regret much," wrote M. Taine, "that I have neither notes nor personal reflections to communicate to you on the subject which you propose to treat; I have never

[1] M. Alphonse Daudet died since the publication of this work.

entered into it. It is true, I smoke (cigarettes), they are a 'distraction' at unoccupied moments and in intellectual waits; but this is a servitude and sometimes a danger, as you show us by many examples. Since you have noted the effects of tobacco on yourself, you are quite competent, and you can give us a very valuable methodical monograph, especially if to documents respecting the French you can add documents upon foreigners, on the German, Dutch, Belgians, English, Americans, who have been smoking much longer than we have, and, I think, much more. The publications of the Society against the Abuse of Tobacco will certainly supply you with all the necessary bibliography!"

From M. André Theuriet:

"I have never belonged to the Society against the Abuse of Tobacco, for the excellent reason that I am an impenitent smoker. Two years ago the President of that Society requested me to reproduce a story in which the misfortunes of a beginner played a part, and after the publication of the tale the Society thought fit to honour me, unworthy, with a silver medal. These have been my only relations with the adversaries of tobacco. I have not, therefore, authority to give you observations in support of your treatise, which may influence the opinion of your judges."

The following are interesting letters from Zola and Coppée; they both take the smokers' side of the controversy. It will be seen that their arguments are not beyond refutation.

Zola, first, sceptical above all, and, a rare thing with

him, almost funny:—"I have no clear opinion on the question you put to me. Personally, I left off smoking ten or twelve years ago, on the advice of a doctor, at a time when I thought I had a disease of the heart. But to believe that tobacco has an influence on French literature is such a big belief that an attempt to prove it really demands scientific proofs. I have seen great writers smoke a great deal and their intellect be none the worse. If genius is a kind of neurosis, why want to cure it? Perfection is so tiresome a thing that I often regret having corrected myself of tobacco. And as I do not know anything more, I shall not venture to say anything more on the question."

Zola, then, at least in appearance, takes up the defence of tobacco. But, in reality, it clearly results from his letter that he has suffered from smoking to the point of being obliged to give it up by order of his doctor. Is it not since he left off smoking that the genius which created the *Rougon-Macquart* and the *Trois Villes* series has attained its full stature?

François Coppée firmly believes that tobacco is most valuable to artists.

"You make a bad hit, Monsieur," he writes; "I am a great smoker; from the age of eighteen or nineteen—I shall soon be forty-seven. I smoke cigarettes all day. Never a pipe or cigars, the cigarette only, and I throw it away after a few puffs. I am not very well, it is true; but I have no reason to attribute my poor health to tobacco, which I regard, until the contrary shall be proved, as an incitement to working and to dreaming: for the poet, these two words are synonyms."

But the Master whom Coppée himself most admires, even Victor Hugo, has furnished the reply to his letter: "Tobacco changes thought into reverie. . . . Thought is the labour of the intellect, reverie is its pleasure. . . . Woe to him who falls from thought into reverie. . . . To replace thought by reverie is to confound a poison with an article of food."

All the other letters condemn tobacco; they are sufficiently eloquent to do without comment, that of Dumas the Younger in particular:—

"I have already replied to-day on this subject to somebody whose name I do not remember. I receive so many letters!

"I advised him to apply to Augier and Feuillet, who have been great smokers, and who have narrowly escaped dying of it. I, who had fortunately begun to smoke very late, have given it up notwithstanding a habit of it—quickly acquired, like all bad habits—when I found that tobacco gave me attacks of giddiness. These passed off in the six months ensuing upon the cessation of smoking, in the proportion of seventy-five per cent.; the last twenty-five per cent. have disappeared more slowly, but altogether it took two or three years. The intoxication was complete. *In my belief, tobacco, with alcohol, is the most formidable adversary of intellect,* but nothing will prevent the abuse of it; for fools are in the majority, and tobacco has nothing to destroy in them: as it is not with the fools that you are concerned, endeavour to convince the intelligent.

"You ought to know better than I that cases of *angina pectoris* produced by tobacco are very frequent;

for this consequence of smoking inquire of Jules Barbier."

Here is the reply of M. Jules Barbier :—

"I have been a great smoker, and I narrowly escaped paying for that deplorable and delicious habit with my life. The action of the nicotine told on my circulation. By degrees the beating of the heart became irregular. A few more cigars and it would have stopped. The doctor for whom I sent that night, when I was in a half-swoon which was but the forerunner of death, has since told me that he did not think he should find me alive on the morrow. The elimination of the nicotine was slow of accomplishment. It took more than a year to get rid of the last traces.

"A peculiarity of my case is that I have become extremely sensitive with respect to other people's tobacco. The disturbance of circulation from which I had formerly suffered was reproduced by my occupying for a week a room in which a smoker had previously lived. A few puffs of a cigarette, my only breach of rule in six years, brought on a state of intoxication which threw me off my balance for nearly a quarter of an hour, and I, who used to smoke from fifteen to twenty cigars a day, without reckoning pipes innumerable, cannot travel in the company of smokers without being made ill. A slight weakening of memory is the only lasting effect of that long-indulged habit. For a considerable time the deprivation of tobacco affected my digestion painfully, but that indolence of the stomach was only temporary, and now its vitality is completely restored."

The following is short and good :—

"Monsieur," wrote Emile Augier, "I am not a doctor; all I can tell you is that, after having smoked for forty years, I had to renounce that pleasant intoxication, which was leading me too fast to the grave."

Octave Feuillet closes the series no less eloquently: "I can only repeat to you what I have recently written to one of your brethren who put the same question. I have just experienced a severe trial; I am very ill, and can hardly hold a pen. Will you then permit me to reply very briefly:—

"I was, in fact, a great smoker, and I found it very hard to renounce tobacco. But I was absolutely constrained to do so, some years ago, by the increase of certain nervous complications which I had for a long time refused to attribute to nicotine, and which in reality had no other cause. I was forced to yield to a conviction of the truth when these nervous affections, stomachical vertigo among the number, became more frequent and more intolerable. It seems to me evident that smoking is very harmful, in general, especially to nervous persons. It produces at first the effect of a slight excitement, a passing intoxication, which ends in somnolence. It arouses the faculties of the mind, but one has to struggle against its action by a reaction which wearies and wears out the will."

I had drawn the following conclusions from these various documents:—

1. It is historically established that writers of genius do not smoke; it seems, indeed, that their exceptional nature cannot make itself a slave to tobacco. 2. Among our writers of ability several are or have been smokers; almost all acknowledge that they have suffered from the

use of tobacco, and, even when they continue to smoke, advise others not to follow their example.

But, it will be said, what is the opinion of the doctors? Well, it is rather painful to acknowledge, but the opinion of each doctor seems to depend on the effects, good, bad, or none, which tobacco has upon himself individually. Hence, as may be conceived, contradictions arise. Gubler is convinced that tobacco is quite harmless; Forget recommends it to artists as a stimulant to imagination; Foussagrives asserts that it stupefies the smoker; and Jolly proclaimed that it leads to madness.

After the heap of documents which we have accumulated, these disagreements are unimportant. At present, besides, medical opinion tends to unity. The great majority of doctors are agreed that tobacco, while harmless to a good many men, is capable of keeping up and aggravating the habitual state of weakness of nervous sufferers. The great Paris doctors, whose more special practice is among men of letters, have supplied me with observations which lead to this conclusion. I myself have attended my literary friends many times, and lastly, I have had the good or ill fortune personally to experience intoxication by the abuse of tobacco.

To draw up a complete list of the consequences of such an abuse would be an interminable task. Suffice it to say that it ranges from maladies of the memory and the will, to the abolition of virile power.

I am bound to recognize, however, that a good many men of letters may smoke without suffering much from the practice. Nevertheless, artists being more nervous, more delicate than many other classes of men, tobacco is specially

injurious to them. In fact, in the case of almost all, it brings on ailments of the stomach and palpitation of the heart; these worry them, make them restless, and certainly contribute to make them worse.

Who can tell but that the abuse of tobacco is one of the causes of the pessimism of these days? Without asserting that it is so, we may say that tobacco will be more injurious than useful to future generations because it is inimical to literary vivacity, clearness, spontaneity, and that liveliness of style which is the distinguishing mark of our French language. This will be the more so because the great days of 1830 are no more. In that golden time our poets, men of herculean mould, overworked themselves without suffering by it, talked in stentorian tones, could do without sleep, digested meals fit for troopers, drained flasks of brandy at a draught, and never felt themselves more fit for work than when they were a little drunk.

They boasted to that effect at least, and I am aware that allowance must be made for their romantic lyricism. Nevertheless, we are right in believing that they were more vigorous and tough of constitution than we are.

2.

The fact is, we are pitiful creatures. Not only is a disorderly life no longer essential to inspiration, but it has become impossible to lead such a life; our stomachs and our nerves refuse to do it. Think of our modern books; are not many of them only gloomy autobiographies, full of wretched details of ill-health? About these there is nothing poetical or optimistic, that is very certain; if they exaggerate, it is in the direction of

whining discontent! Our "masters" of the 1830 period were plethoric from every point of view; we need only frequent some of our contemporary artists to be struck by their constant complaints of the state of their nerves or their stomachs.

Apart from the special malady of such or such a writer of the day, we observe that almost all have nervous troubles, ticketed with the rather too loose and elastic name of neurasthenia, and marked by symptoms anything but poetic, such as the following:—

Your favourite novelist, Madam, has a wretched digestion. After each of his meals his face turns red, he is heavy and drowsy; his stomach swells and his waistcoat incommodes him; you may be sure he unbuttons it when he dines at home; when he dines out he has to be content with furtively loosening the buckle. He suffers from palpitation, and being always anxious about himself, he thinks he has a serious affection of the heart. He is harassed by headaches, neuralgia, and odd aches and pains which perplex and depress him. He is at once weak and violent, irascible, but without lasting energy. This contributes not a little to make him morose; he is as spiteful as a hunchback against those medical brethren whose 'chaff' he dreads. Last and supreme grievance, he is growing prematurely fat, and ageing before his time.

Only rarely, however, do all these miseries come together upon one individual; the picture is not always so dark. But those who escape them completely, and have not at least one of the above symptoms to complain of, are, I assure you, very few.

How, then, may a busy life be led with such an organization? Only on the express condition of methodically regulating the day, of observing an exact regimen, and never departing from strict hygienic rules. And thus it is that the hygienist and the doctor are called on to advise and guide the artist in his mode of life.

Long ago the idea occurred to me of drawing up an 'opinion' exact enough to be useful, and sufficiently general to be capable of application to the great majority of cases. I had previously consulted Professor Albert Robin, of the Academy of Medicine, a man of great learning, specially accustomed to treat nervous disease. I reproduce this document here, although its notion of the neurasthenia of men of letters and its treatment may now be a little out of date. Counsel more precise will be found in the second part of this work, and especially in the chapter devoted to the treatment of indolence.

The first symptom of the malady of men of letters, which is a nervous malady, is almost always a defective state of nutrition. The stomach suffers, and as it is enfolded in a close net-work of nerves, its disturbance acts promptly on the whole of the nervous system. Moreover, the anæmia consequent upon bad or ill-assimilated food contributes to the derangement of our nervous system, rendering it at once more feeble and more irritable. Briefly, it is from this theory that the system of treatment logically ensues.

The first thing to do is to cure the stomach, at the risk of not obtaining an immediate amelioration of the nervous symptoms. Only an extremely strict regimen can give that result. The following are the principal points.

Extreme regularity in the hours of meals. The entire suppression of greasy substances, butter, fats, poultry, oily fish and cheese; the suppression of pastry, bonbons, milk food, sweet dishes, and liqueurs whether strong or sweet. A radical modification in the regimen of beverages; total abstinence from 'bitters' of every kind and from beer, thirst to be relieved by drinking white wine in very small quantity, diluted in one glass of a digestive mineral water per meal at the most, or better still, by taking only hot drinks, weak tea, or an infusion of camomile or orange leaves while eating. It is better still not to drink at all at meals, but to wait until the stomach is empty and digestion finished, for, theoretically, food and drink are not made to be mixed.

All this is not pleasant? Certainly, it is not, and one's first idea on the hearing of such a prescription is inevitably: "If all these things are forbidden, there is nothing left for me to eat! The remedy is worse than the disease."

There is left for you to eat a great number of delicious, if not widely varied things; all the broiled meats, underdone, with the gravy in them; game, on condition that it be not fat or kept too long; the un-oily fishes, soles and whiting especially, broiled or boiled and without sauces; vegetables, but only mashed (*en purée*), and toasted bread, for the crumb is absolutely forbidden as indigestible.

At first, such a regimen, as may readily be supposed, is painful; the absence of one's customary drink is, above all, a real torment, a sound little penance. But the person who has courage to persist for one week only will already perceive a sensible amelioration: digestion is no

longer slow; he is no longer obliged to unbutton his waistcoat, he no longer feels sleepy after meals; the monotonous food begins to be savoury; he acquires a previously incredible appetite; he eats and nevertheless he becomes thin, for the unhealthy fat, when there is any, burns itself away, nutrition becoming more active and the muscles stronger. With this regimen results are obtained at least as satisfactory as with the vegetarian diet so much cried up of late. (The vegetarian diet admits of several things, milk food, raw fruits, and dried vegetables, which the stomach of a nervous artist cannot bear, unless he resides in the country and takes a great deal of outdoor exercise.) The mind soon becomes more alert, more lucid, and less irritable, the man becomes a man again, he feels cheerful, ready to live the common life once more, to go out to dinner and surprise his neighbours at table by his wit as well as by his appetite. He can work without fatigue.

But when he thinks himself quite cured, he must beware of committing any imprudence under pain of a serious relapse.

In order to remain well he must regulate his life, fix his hours of work, the time for his meals, for exercise, bicycling in the summer, fencing or chamber gymnastics in bad weather. It is very difficult to lay down general laws; each in such cases must do what he can; a journalist or an art critic has to submit to other necessities than a novelist or a poet.

Here, however, is a rule of life which seems to meet the requirements of the general case pretty well.

At eight o'clock.—Rise. At half-past eight.—The

douche. It is quite necessary to have the douche administered by a doctor (specialists are almost without exception very gracious to men of letters and journalists). It is better not to apply to those who use only cold water. Employed solely, cold water does harm to nervous, gouty, and rheumatic persons. A tepid rain-douche over the whole body, warmer at the level of the stomach, followed by a light quick cold shower, generally produces excellent results.

At nine o'clock.—First breakfast. Two raw eggs (swallowed, or very lightly boiled—the yolk of egg being very much phosphorated, is beneficial to those who have to do brain work); a small cup of coffee with very little sugar, and, if needs must, a few puffs of a cigarette.

Half-past nine.—Work: this is, it appears, the right moment for lucid composition. Three hours of regular work do not overtax, and suffice for the accomplishment of big tasks. *Z*ola, who writes at least one thick volume of from four to five hundred pages every year, limits his work to that time.

Half-past twelve.—Luncheon (*déjeuner*). After a few days, the regimen, while remaining strict, may be made more agreeable by some additions to the food: brains, sweetbread, soft fish-roes, too greasy to be eaten at first, are much to be recommended when the stomach begins to improve. White and red meats and toast always. By this time the habit of not drinking during meals is formed. Those whom coffee does not suit will do well to take a little glycero-phosphate or kola (granulated for choice) at the end of the meal.

Immediately after the meal it is advisable to recline, quite

still, in an easy-chair, so that the stomach shall be free from pressure. Remain there for half an hour, without talking, and read an article in a soothing newspaper, which does not criticize your works, and does not make you angry. You ought to wear trousers wide at the waist and with braces.

At the end of this half hour, smoke, if you have not the courage to do without tobacco, but smoke only a little: one-third of a good cigar, for example—and not at all, if you have. Then go out and attend to your affairs. If you cannot have a ramble in the country, walk in the streets, observing your fellow-men and arranging what you shall write to-morrow morning. Read from four to six. Take your fencing lesson and dine out, if you like the society of women of the world, and especially if you require to study them in the interest of your novels. See an act of a play, but do not go behind the scenes; card parties are quite unfit for you. Go to bed at midnight, and in order to sleep well, do not read.

This happens to be the regimen which Victor Hugo made for himself. It is also that of *Z*ola, with the difference that the great novelist takes a short siesta after his luncheon. They are both fair examples of its merit, are they not?

3.

I did not expect that the literature of the day would be extensively altered, and that contemporary pessimism would fade away under the influence of these modest precepts of mine. But I must say that neither was I prepared for the indignation which was aroused by their publication in *Le Figaro*. The young writers in par-

ticular were exasperated. They called me "bourgeois" and laureate of the Anti-Tobacco Society, and accused me in more than one extremely modern review of designing—under the pretext of curing these gentlemen of neurosis—to curb their inspiration, cut the wings of their imagination, and reduce them to earth level.

And it was freely said: "There, you see, is a specimen of the puerilities and paltrinesses of science."

The word science is much too big for such an unpretending counsel of health. I am, however, perfectly aware that the tendency of doctors to study the brain of artists, and their desire to treat it, are calculated to displease a generation which makes profession of disclaiming all science, turning its back on this age, and hailing the supernatural as the sole source of the Beautiful. Have we not recently witnessed the adoption of philosophic mysticism by a number of young men? Socially and medically speaking, I know nothing so curious as this decidedly reactionary movement which has set in suddenly, at a time of lukewarm faith, in our Republican country. Let us consider that doctrine which I am regretfully obliged to despoil of the phrases—very often eloquent phrases—from whence it derives the best of its charm.

Pessimism, under its old form, has had its day; it must be rejuvenated.

Nobody will venture to dispute that our life is sad, that it abounds in vexations and trials. Now there are only two possible issues: we must suppress Desire in order to kill Suffering, throw ourselves into action, lose ourselves in the great Nothingness which only can give us peace; and this makes Neo-Buddhists; or, on the contrary, we

must elevate Desire, raise it ever upward towards the Life Eternal, which only is worthy of being desired ; and that makes young Christians.

This is not altogether new to the "young" school, to say the truth, but what matter !

Outside these two resources, they tell us, there is no place for anything but the vilest and most "bourgeois" coarseness. There is no other salvation for the art of the future. Of course these philosophers heartily hate and despise the modern scientific movement. And it is just because they do so that they are particularly interesting to us.

Science, in fact, can logically tend only to great love of nature and of terrestrial life, to rather pagan pantheism, and to the joy of life in giving what we can give to ourselves and others. And so these young philosophers lavish their choicest abuse on the savants by profession ! "Gross materialists, low minds, poor spirits, satisfied with little."

And the savants retort : "You belong to us, you are sick persons." And, as it is their custom to catalogue everything, they place their adversaries in the chapter of "Maladies of the Nervous System" under the heading—which is at once complimentary and pitiless—"Superior Degenerates."

Far be it from me to take the part of either the young philosophers or the savants. I have already been severely handled for having ventured to suggest a health regimen for men of letters, and I have no desire to incur their wrath once more.

Therefore, I shall limit myself to stating—prudently

excluding my personal opinion, which is of so little importance—what it is that guides the doctors in their judgment of the modern mystics, Buddhist or Neo-Christian. In a case of the kind, the physician takes good care not to discuss the doctrine itself, because that is not his business. As a principle he holds that all views of the mind are equally right or wrong, that the logic of pure reasoning can lead only to ingenious theories, true for him alone who conceives them at the moment when he conceives them. To be a Buddhist, why not? It is a delightful recreation of the mind, one of the most pleasing subjects of thought. All those seekers for truths in the natural sciences know, better than others, how vain are appearances and the impossibility of knowing anything in itself. Therefore, they are careful not to enter upon discussion of doctrine; but are content to study the mind that conceives one so as to discover whether there is a flaw in that mind.

Let us follow their course of observation of a gentleman of the period who proclaims that he feels an irresistible vocation to Buddhism. That observation will be summed up as follows.

The gentleman in question has almost always a strongly neuropathic heredity. He is the son of nervous persons, nervous himself, and he bears the physical and moral stigmata of degeneration. His digestion is weak, and he has headaches. His sensitiveness is exaggerated. He presents all the symptoms of neurasthenia, a disturbed condition produced by fatigue and irritation which accompanies our modern overtasked life and ill becomes the serenity and gentleness of Buddhism.

This man is then an artificially-obtained Buddhist. He is highly intelligent, but his intelligence is of special quality, reasoning, theoretical, contemplative; it lends itself to the fairest imaginations, to the highest meditations, but not to creative activity. It develops itself within and on itself. It does not produce, it is not fertile. It is limited by a phenomenon of arrest, "of inhibition," to use the word invented by Brown-Séquard. And that impotence is not always confined to the cerebral function. Opium being not yet a custom with us, the Parisian Buddhist indulges to excess in the cigarette. When he engages in literature, it is much more generally as a critic than a producer. His criticism is intelligent, cold, and very keen; he endeavours to render it as passionless as possible, so as not to belie his primary theory of indifference and indulgence. But, in reality, he is not so placid, and when he talks, if not when he writes, he is perhaps more stinging, more unkind than the passionate ones; for he possesses wit, and he is not enough of a Buddhist to disdain the exercise of it.

In short, he is kindly only by fits and starts; he is only an intermittent Buddhist. From all this we may arrive at the following conclusion :—

Certain persons of superior but ailing intellect, endowed with lively sensibility, but almost destitute of will-power, have recently discovered in works of special erudition that the doctrine of the great Buddha erected their mental malady into a religious system. That grand faith, which allows its followers to be mystics without exacting very fatiguing practices from them, was a fortunate find; and regardless of the age, of race, or of climate, they have

hailed Buddhism as a new gospel. Indolent, notwithstanding their erudition, suffering from a malady of the will, they think to justify their natural indolence by adopting a theory which dispenses them from effort.

From the philosophic point of view we do not dream of blaming them. From the strictly medical point of view, they are and remain sick persons, with exhausted nervous systems, and doctors do not advise the practice of Buddhism in such cases. It is much too homœopathic a mode of treatment.

As for the Neo-Christians—Neo-Catholics rather, for strict Calvinism does not go with their taste for art—the doctors would respectfully refrain from meddling with them if these Christians were merely submissive sons of the Roman Church.

The matter is not one of beliefs, but of temperaments. The prudent Church herself does not too tenderly cherish these revolted "enfants terribles," who unite carnal things of curious kinds with the higher mysticism, doing honour to certain saints whom we are by no means prepared to see canonized.

In order the more completely to confound science and its flatly-positive data, these Neo-Christians have lately conceived the idea of reducing the knowledge of convulsive hysteria and hypnotism which has been methodically acquired at La Salpêtrière, to nought. And we find them practising the blackest magic, sorcery, the art of raising the devil in a solitary and ill-famed place, of interviewing spirits, casting spells, and imparting or curing diseases at their pleasure by means of sorcery. Here we get deeper and deeper into mental pathology.

Certain Buddhists—the least pure of the persuasion—had already dabbled with fakirism, and now we are promised the practices of the Middle Ages, the symbolic goat, the black Mass, the incubi, and the witches' sabbath. The Holy Father must mind what he is about; the reign of the Rosicrucians as masters of the world is coming.

Let us admit that a kindly and capable critic may be at the same time slightly Buddhistic, and that a man may be a great poet and also be affected by certain forms of depravity or by belief in magic. But are we, because this is so, to be taken back to the doctrines of the Middle Ages, or to the practices of old Hindostan? These young men aim at destroying all that science has won, all the courage and the hope that science has brought into modern life. Let us defend ourselves, for it is our right, and, I believe, our duty to do so.

4.

But it also frequently happens that men of letters are less hostile to our doctrines, less scornful of our advice.

From time to time fear brings them back to us and makes them regard us with less unfriendly eyes. I remember well the commotion that was excited by the case of poor Maupassant. That terrible calamity made every man afraid on his own account—an egoism intensely human—for two or three months the dread of madness haunted the brains of every literary man, and more than one—who had not the incomparable talent of the great novelist whom it had been necessary to shut up—thought solely and wholly of the relation between genius and madness.

I myself do not know any more captivating question. It has been again brought forward in a famous book.[1] I shall take leave to dwell for a brief space upon this work.

When Maupassant became insane, some eminent alienists, M. Motet and Dr. Blanche especially, asserted very loudly that their asylums did not contain in proportion a greater number of artists and writers than men of business, merchants, or quiet citizens. Because they are celebrated, the madness of great men makes more noise than that of plain bourgeois who are unknown to the world in general, and that is all.

The case of Maupassant was an exception. Had there not been several mad persons among his ancestry? (I am free to say this since it has already been said.) Besides, for a long time he had indulged to excess in artificial stimulants of thought. I was talking with him—before his last departure for Cannes, whence he returned in so pitiable a condition—of the psychology of his *Pierre et Jean*, of his marvellous lucidity in depicting jealousy, and he replied: "I did not write a line of that book which you consider true—and I, too, think it strikes the right note—without making myself drunk with ether. I found superlative lucidity in that drug, but it has done me a great deal of harm."

Heredity and intoxication—this is a more than sufficient explanation of the calamity, without any need to incriminate literature as well. As a general rule, writers and artists who do not belong to a tainted family, and who do not indulge in intoxication, do not become insane. This

[1] That of Dr. Toulouse upon Emile Zola.

fact ought to relieve a great many from anxiety. Besides, madness, when it occurs, is never in direct proportion, firstly, to the degree of talent, for it is quite as frequently the failures who go mad as the masters; secondly, to the nature of the talent. Consider the Goncourts; it is quite impossible to apportion the share of each respectively in their common works: the brain that conceived *La Fille Elisa* and *La Faustin* does not seem to differ from the brain that conceived *Charles Demailly* and *Manette Salamon*: a little less sparkle in the wit, a touch more of melancholy, that is all. Yet Jules de Goncourt died insane, and Edmond de Goncourt survived him for sixteen years of lofty and perfect lucidity of mind.

Neither is madness connected with the relentless struggle, the excess of toil, the grim difficulties of life. Baudelaire, Flaubert, Jules de Goncourt, and Maupassant never experienced poverty. Maupassant, in particular, triumphed in his early youth, and superbly! In vain also is abuse of sensual pleasure invoked; the "candidates for madness," as doctors say, are more frequently abstainers in that respect. No conclusion on this point, then.

No doubt many literary people are subject to oddities, fixed ideas, prejudices, fancies, and some to moral perversity, and to lapses from common sense. Sensitive pride, thrilling sensibility, extreme irritability, the dread of failure, are easily developed in their exceptional minds. These do not indicate perfect equilibrium, but it is hardly a novel discovery that men of genius have not exactly the nervous system of M. Joseph Prudhomme! The old adage, *genus irritabile*, taught us

as much as that, and it had, besides, the merit of conciseness.

Aristotle, in his far-off time, asserted that most of the illustrious men of his day suffered from hypochondria. A savant nearer to our own, Dr. Réveillé-Parise, while admitting an individual innate disposition to irritability in people of talent, regarded neurosis in the case of the literary man as the consequence of his exceptional labour, much rather than as the source of his genius. He held—the reasoning would be considered somewhat simple now—that the brain of the thinker, working harder than all the other organs, appropriates a larger amount of aliment, thereby impoverishing the rest of the organism and placing it in a condition of inferiority for contending against disease, particularly against those maladies which attack the nervous system.

The celebrated alienist Moreau (of Tours) applied himself especially to advancing and supporting by proofs the idea that neuropathy is veritably and indeed the mother of talent, its condition *sine quâ non*. Genius, according to him, is only one of the manifestations of extreme excitement of the brain; poetic inspiration borders on acute mania. According to him, then, intellectual superiority is one and the same with neuropathic excitement. And we feel that Moreau (of Tours) contents himself with this vague term, this ill-specified diagnosis, because his doctrine is confused and insufficiently elucidated in his own mind.

A few years ago the question was again taken up by Lombroso, who, falling into the contrary extreme, erred by over-precision: he declares plainly that genius is an

epileptoid neurosis, a masked form of epilepsy (*le haut mal*).

Few scientific works have made such a stir. His book was translated into several languages, and his doctrine was made the subject of much important discussion. Nevertheless, it is already disregarded, for the reason that serious savants are hard to please in the choice of arguments, and that the proofs furnished by the Turinese professor are not exact enough. His *Hommes de Génie* abounds in curious anecdotes and narratives which are interesting but not sufficiently accurate; it is made up of *on dits:* he will pronounce an opinion of an individual upon his appearance, from a photograph, and confidently proceed to a pitiless diagnosis; declaring, on the most futile pretexts, every man of talent to have the symptoms of epilepsy. He quotes a thousand examples, and hardly ten are conclusive. At the last page of the work, no impartial man endowed with critical faculty will be able to come to any other conclusion than that Moreau (of Tours) does right to be vague.

Again, we find this unprecise, partly scientific and partly fanciful method, in the writings of Professor Nordau, a German writer of great ability and skill. He perceived the opportunism of the subject, and with great readiness and ability he brought some of the most brilliant hypotheses of our time into strong relief. He has devoted two big volumes, under the scientific-seeming title "Degeneration," to proving that all our modern art—the art of France in particular—is but a monstrosity, a bad imitation of the ancients, a manifest symptom of a miserable death agony, and that portents

of its decease are rife. Professor Nordau is a disciple of Lombroso, and in his work numerous hazardous opinions, many classifications drawn up with evident prejudice, many judgments without proofs, are to be found, together with acute observations and ingenious ideas.

It appears that M. Nordau has amused himself by placing the artistic productions of our time in pigeon-holes and ticketing each with the name of a particular nervous disease, most frequently one of those which lead to alienation of mind. In each of these pigeon-holes he stows away, here a writer, there a painter or a composer, heedless of the flat contradictions that may be reserved for him by the judgment of posterity. By him the most legitimate pride is denominated delirium of greatness; melancholy, delirium of persecution; the most harmless distraction of mind, epileptic absence; lyricism, divagation: for him, rhythm becomes a mania; a quick temper, raving madness; depression, coma.

This is the very height of prejudice (*parti pris*), which is properly the contrary of science. One grows weary at length of such interminable paradox, and cannot resist the conviction that the work—curious, amusing, full of animation and most ingenious in its sophistry as it is—is but a lengthy exposition of a fixed idea, a morbid, besetting conviction, which obscures everything from his view except degeneration and the end of a race.

It is indeed true that the artistic vocation, the "talent phenomenon," frequently develops itself in a family of degenerate persons. In these old families, whose vitality is exhausted, the offspring no longer come into the world in the normal condition; they are not mere ordinary

beings; sometimes they are of stunted growth, idiots, or oddities; sometimes they may be superior beings, destined to initiate humanity into the beautiful or the true of a later day.

Impassive Nature does not like exceptions. "She is essentially an equalizer and a leveller," as M. Charles Richet observes in his preface to Lombroso's book. Zoology teaches us that certain races of insects die at once after the reproduction of the species. To die of fertilizing is a law in some cases. When a tree comes to the end of its sap, abortions grow on the same branch at the same time with fruits of extraordinary beauty. That humanity also is made thus I think must be admitted.

In short, men of letters and artists are liable to go mad in a permanent or passing manner when heredity is in the case—like other people, perhaps a little less than other people. They come of degenerate families rather frequently, and often have a crazy or mad person among their forefathers, their collaterals, or their descendants. But supposing their artistic vocation be their own special neurosis, their way of being degenerate, it would rather act as a preservative from the other manner, from real actual madness, and this is well. Almost all those whom we know, the most enthusiastic, the most lyrical, those who are most truly "martyrs to their work," are but neurasthenic persons, off their balance like all who are civilized in the extreme. Their reason will not be wrecked. Many among them, on emerging from the mood of sublime meditation, are sufficiently calm and lucid to conduct their affairs right well.

M. Edouard Toulouse has not materially departed from this view in the first volume of his *Enquête médico-psychologique sur les rapports de la supériorité intellectuelle avec la névropathie.* The book is a little hasty here and there, but it does not contain a page which speaks yet says nothing, and I am especially desirous to direct attention to the General Introduction: in this my young confrère, impartially analyzing the work of his forerunners, rejects the process of Lombroso, urges greater precision, and, while he fully recognizes the difficulties which await him, states that instead of contenting himself with documents at second hand, he will come to conclusions solely upon medical observation made personally upon living subjects who submit themselves to his investigation with full consciousness. No doubt the means of investigation at our disposal for the study of brain action are still very poor; there is, however, no doubt that the method of Dr. Toulouse is very far superior to the approximations with which his predecessors were contented.

His analysis of the case of M. Emile Zola, although imperfect, is nevertheless the first really scientific attempt that has been made in this line.

Now, his book does not prove in any manner whatsoever the epileptoid or hysterical nature of genius. Indeed, it clearly results from the observations of Dr. Toulouse that the creator of the Rougon-Macquart series is neither epileptic, nor hysterical, nor to be suspected of mental disorder; although he may suffer from numerous nervous troubles, his physical and psychological constitution is nevertheless "full of strength and harmony."

"Still," adds Dr. Toulouse, "it is not to be denied that M. Zola is a neuropath, that is to say, a man whose nervous system is ailing. Why is this so? Is the trouble hereditary or acquired? I suppose the ground has been prepared by heredity, and that constant intellectual work has by degrees undermined the health of the nervous tissue. But I do not believe that this neuropathic condition has been and is indispensable in any way to the remarkable faculties of M. Zola. That condition may perhaps be an inevitable and is certainly a distressing consequence, but it is by no means a necessary one."

I am not acquainted with any scientific document which leads us more positively to the conclusion that a relation of cause and effect exists between neurosis and intellectual superiority.

5.

Dr. Toulouse carefully abstains from even the slightest appreciation of the works of M. Emile Zola; his own work is that of a psychologist, not a critic. He did not think the moment propitious for such an innovation; but I know that it is his cherished ambition to lay the foundations of scientific criticism, criticism by the psychological physician who, not satisfied with studying the brain, will necessarily go on to desire to analyze the work of the artist.

The eminent physician of St. Anne's has written to me to the following effect:—

"My opinion is that literary criticism and the criticism of art belong to the man of science and to him only. These studies are indeed no other than applied æsthetics,

which is, in fact, nothing but a branch of psychology, and under the jurisdiction of the same methods and the same observers as the latter.

"Criticism has two aims or two aspects; it seeks to explain the work by the individual, and it classifies it according to a general conception of the Beautiful. It is evident that the criticism which I call *technogenical*, because it studies the genesis of art work, cannot be practised with utility by any but the psychologist, or, to speak more accurately, by the physiologist.

"A novel, a bas-relief, a picture, is an expression of sentiment or passion (*geste*), or, to use a famous formula of M. Zola's, 'a corner of nature seen, seen through a temperament.' Who but the competent man of science can establish this relation between a work and the physical and mental organization of its author; who but he can analyze the individual conditions which determine it? This is so true, that Hennequin, a man of letters by origin and profession, when endeavouring to explain Victor Hugo's writings, put forward hypotheses based upon the physiology of the language.

"Criticism of art work would seem to be outside the sphere of the physiologist; it is, however, entirely within his competence. When a work of art is found pleasing, it is because that work excites æsthetic emotions of a certain kind, which are not yet studied and still less measurable. But it is likely that these impressions will be better analyzed one day, and may consequently serve as the criterion of an æsthetic classification. In the meantime, we may take up the question at its other end, seeking out the genesis, the evolution, and the modes of the

general conception of the Beautiful, to which a particular work of art is compared.

"It is evident that æsthetic phenomena are subject, like all others, to laws, and that it is the business of the savant —whose object is to seek out truth—to discover them. From a very general point of view, it may be said that art is an imitation of nature, without representing it exactly. Between the artist's work and nature there is a division, which properly constitutes art. That space represents the choice of the artist who arranges the facts of his observation after his own fashion, so as to produce an agreeable impression. In the doing of this, he unconsciously applies laws which we have to discover.

"Whether it be the economy of the brain work of the spectator, as Herbert Spencer believes, or quite another condition by which these phenomena are regulated, matters little; we have to admit that there are reasons which cause certain artistic styles to give us pleasure. I hold, then, that criticism can be entirely developed in the hands of psychologists and physiologists only."

No doubt all this will be regarded as rash assertion, and it will be very judiciously remarked that the criticism of a work of art does not solely pre-suppose an intelligence trained in psycho-physiological research, but also, and especially, technical knowledge difficult of acquirement by an outsider. But it would ill become me to find fault with my confrère, I who wrote as follows in 1891:—[1]

"In adopting the unusual rubric: *Études et causeries médico-littéraires*, I cannot be insensible to the surprise with

[1] In *La Nouvelle Revue*.

which the association—a startling one at the first glance—of those two terms, medicine and literature, which are set apart by definition, will be received. If there be a thing illogical and to be condemned *à priori*, it is the mixing up of different professions, and especially that mania of the day for creating a certain medical literature; if there be a class of persons whom we ought to distrust, it consists of those who make it their habit to meddle with matters which do not concern them, the Ingres who persist in playing the violin. Therefore, it is necessary for me accurately to define the aim that I have in view, in the form of preamble."

It has long been accepted as a common law that the student who has patiently and thoroughly investigated a special corner of human knowledge, though it be but a small one, is more apt than another to entertain sound general ideas; and everybody knows that the School has had the highest practical influence upon the civilization of to-day. Our form of government, the Republic of Gambetta, which has been called in my hearing "the Republic of Claude Bernard," because its characteristic is the utilization of method, is the most striking example of this. The savants, with rare exceptions, are staunch Republicans, just as they have a community of views and tendencies in philosophy, which brings them into agreement.

Being placed, so to speak, at the confluence of the scientific current and the literary current, I necessarily retained from that medical education a certain manner of thinking which I owe to my initiators of the School. But my special case would possess only very moderate interest, were it not my desire to extend

these general ideas of some eminent minds to literary criticism.

Now, I have ascertained that those thinkers conceived, almost unknown to themselves and somewhat obscurely, an ideal of modern art which should, as they held, associate itself logically with the other contemporary manifestations of the human mind, in order to serve as a basis for the legitimate literature of the third Republic. Perhaps I am in a better position than any other to attempt the embodiment of these scattered ideas, and to present them to the public, whom they cannot fail to interest at this moment, for the following reasons.

Let us consider what is happening, and how favourable the hour is. The public at present stands in great need of some one to present it at length with some positive notions, even were they less refined than those on which it has hitherto been fed. The ever-increasing number of our literary schools on the one side, the languid dilettanteism of criticism on the other, trouble and set it astray. What must it read, whether ought it to prefer naturalists or mystics, story-tellers or "intellectuals," Parnassians or symbolists, psychologists or supernaturalists, Buddhists or Rabelaisians, magi or the "Magnificents," austere thinkers or symphonists of phrase? One of the acknowledged masters of contemporary criticism, M. Jules Lemaître, has almost arrived at being unable to make up his mind. By dint of going deep into his subject, of conscientious care in weighing the for and against, he always ends by finding that the one balances the other; he accordingly formulates "appreciations"

which may be summarized as follows: "This is worthy of praise . . . unless, indeed, it be not absolutely reprehensible; that is better, provided that it be not worse. . . ." I do not exaggerate anything. This is the play of too conscientious, intelligent, and subtle a mind, it is the delight of the man of letters in dialectics; but it has the serious defect of failing to correspond to the great need of precision, simplification, "schéma," which is certainly felt by us all! The case of M. Lemaître is particularly instructive, for it affords an additional demonstration that doubt and irresolution are the issue of reasoning pushed to the extreme. Philosophic nihilism is nothing but an excess of conscientiousness.

Outside of this we have merely personal criticisms without collective views, supported only by the authority of the name appended to them, or the indignant protests of some writers who are too vehement to escape suspicion of narrow partiality. What is the result? It is that all criticism is dying out, and the interview is replacing it, insufficiently, it must be admitted; the persons interrogated speak up for themselves, depreciate others, and severally proclaim, with modesty varying in form, that each one has found the universal panacea. Hence the height of confusion, and the public getting tired and begging to be left at peace.

The method which I would fain inaugurate has none of these drawbacks.

I propose, for want of a better, medical intervention. At the first glance the summoning of a doctor to the aid of criticism in its agony must strike you as unreasonable in the extreme, but I beg you to consider this idea.

The modern doctor treats other maladies than rheumatism and ailments of the stomach. For some years past he has been accustomed to the pathology and the hygiene of the intellect.

For him to read certain pages is not only to experience impressions of pleasure or annoyance; it is to arrive at a diagnosis; it is to form a judgment of the cerebral condition of the writer; it is to be able to say to himself, "The mind that has dictated this is a sick mind or a healthy one, capable or not capable of contaminating those who shall read it." Consider this and you will foresee arguments of an entirely new order and of serious value in the discussion of the works and the men.

Let me at once meet an objection which arises—whether the best artists be more or less off their balance is not at all in question and is absolutely unimportant. The medical treatment of the human mind, although as yet a science in its infancy, is neither so puerile nor so obtuse as all that: in the loftiest works, the least "bourgeois," as the phrase goes, the most fanciful, the most various, it can distinguish between morbid abortion and healthy creation, and can make its affirmations with certainty supported by solid argument. It can assert so and so to be sickly, so and so to be sound; it can say: this may do harm, that is not poisonous. As it instructs us with precision upon the qualitative value of a brain which creates, it contains an æsthetic system; as it informs us of the contagious danger of certain works, it contains a moral system; and so, at length, it is found to be less incomplete and less unreasonable than it appeared just at first. This manner

of argument, which none can accuse of being vulgar and threadbare, will have the ever-respected prestige of knowledge.

In these latter years we have seen medicine dealing gloriously with philosophy, we all know how; with history, by shedding a new light on pythonesses and augurs, witches and the possessed; with jurisprudence, by doing away with the old notions of responsibility. Why should the domain of art be for ever shut against this great seeker? When medicine began to occupy itself with the business of justice, there was alarm and loud outcry. And now, what would become of any attempt to condemn a criminal in opposition to the opinion of the lawyer-doctor?

A dangerous innovation, foolhardy rashness! Why so, if the individual who undertakes the task be not unlettered, if he love literature passionately as he ought, if he follow its various manifestations with the devotion of a lover, in a word, if he be a skilful specialist, a medico-literary specialist, as there are specialists in legal medicine?

Again, consider this.

There is nothing scientific properly so called, or of laid-down rule in this æsthetics of the savant. It does not constitute a systematized doctrine such as the critical methods inaugurated by Taine and pursued by Hennequin, masterly methods, which analyze without appraising, study the work on all sides of it, but do not pronounce upon its merit. We shall be more modest and at the same time more bold. We do not want to produce *æstho-psychology*, but merely to give some certitude to literary criticism.

In short, our method proceeds in part from intellectual

pathology and in part from that thing called good sense, which is hardly at all scientific. When they want to pass judgment on a book, the most ingenious critical systems do not ever dispense with that element. In the present instance it is a question of very particular good sense, nothing trite or commonplace, but that sense of 'seeing true' which the study of the natural sciences develops to so high a degree. Owing to this the public cannot fail to be interested in and to understand it. The arguments will be rather rough, no doubt, deficient in artifice, a good deal simplified; all the more reason for their striking home more accurately and penetrating more easily, for we are crammed to satiety with the subtle.

I do not claim to inaugurate a general system of æsthetics, for all the arts would not equally accommodate themselves to that. Besides, I do not know why they should all be measured with the same foot-rule. Such a method of forming a judgment worthy of attention on a painting, a symphony, or a work by a sculptor, will never suffice; for that, technical initiation, a special education, are absolutely necessary. But, whatever may be said, literary art—in prose, especially—although it is the highest of all the arts and also the most difficult of attainment, is the most accessible to the judgment of the greatest number, being most fully under the jurisdiction of public opinion. It has, indeed, its arcana, but all persons of any culture and intelligence are soon initiated into these, and nothing can prevent a class of educated men, even though they be doctors, from discussing it openly, if new light is to spring from it.

Well, then, I believe most firmly that there is in this a hitherto unexplored vein of critical ideas, perhaps sound, certainly interesting, in any case based on something modern and strong which will give them, I imagine, some of the firmness and decision for which the public is athirst, disturbed and set astray as it is by the languid dilettanteism and straw-splitting of the day. Of these the public is weary, notwithstanding the ability of the dilettanti and the straw-splitters.

I think to-day just as I thought six years ago. I believe that medical criticism of art will be a necessity some years hence; it is difficult to guess how soon. Man is destined to study everything scientifically, to weigh everything, to measure everything; nature, the emotions of the soul, the intellectual faculties, and even works of art. But the era of all this seems very far off! I myself have made a few attempts in that direction; now they seem to me not worth taking off the shelf. The example of M. Max Nordau is not calculated to encourage us. Perhaps Dr. Toulouse will be able to make a farther advance. I hope so with all my heart, but I also question whether the hour is yet come?

6.

Within more modest limits, I hold that the science of the functions of the brain—as the physiologists and the physicians of our time have created it entirely within the last twenty-eight years—furnishes us with valuable means of ascertaining and differentiating certain intellectual "states of being." I propose the following as an example:—

My confrère, Dr. Cabanes, who is a man of learning and taste, proposes that a monument to Sainte-Beuve be erected in the Gardens of the Luxembourg. A committee, composed of well-chosen men, take charge of the subscription, and the enterprise is assured of success. I applauded it greatly for my own part, as I regard Sainte-Beuve not indeed as the most genial, but as the most intelligent of men, the most cultivated "consciousness" of the first part of the century. Sainte-Beuve in literary criticism, Renan in philology, Taine in historical criticism, Jules Soury in scientific criticism, do high honour to the French mind.

But this is, I believe, the first time the statue of a critic has been erected in a public place, mankind having hitherto regarded the genius of invention as solely worthy of such an honour. And perhaps the moment is not ill-chosen for inquiring whether in reality the poet—in the primitive sense of the word, he who is a maker, he who gives a *work* to the world, musical symphony, painted picture, drama, novel, industrial invention, or scientific discovery—stands higher in the admiration of men than he whose profession it is to judge that poet, the critic who analyzes and compares the productions of the mind in order to appreciate and derive general ideas from them. The parallel of the conscious and of the unconscious, of the active and of the reflective intellect, has to be re-made here, and the problem is all the more captivating at the present moment, because we are looking on at the fusion of the two kinds in literature. In the face of writers whose works are only translations of their own personal conception of the world, like Zola, Daudet, Pierre Loti, we have witnessed the uprising of a whole phalanx of men capable

of combining the keenest critical sense with creative activity. Paul Bourget, Anatole France, Jules Lemaître, Maurice Barrès, have not only given us fine studies of the works of others, but each writes stories, novels, and comedies in which his mind, while preserving its original stamp, is constantly bent on the interpretation of attitudes and acts, on the comparison of facts and the generalization of ideas. They philosophize by the wayside, and their pauses of deep reflection slightly lessen that vital exuberance, that animation in their imaginative writings which was formerly regarded as the leading quality of a narrative or a drama. Even when they procreate, these writers are not men of action.

That which distinguishes them from their literary brethren is erudition rather than the attribute of psychology. For, in fact, Balzac was a great psychologist, and it is not to be denied that there is profound knowledge of the most secret depths of the human mind in novels like Zola's *La Joie de vivre* and Alphonse Daudet's *Sapho*.

After his speech on the occasion of his reception at the Academy, M. Pierre Loti was universally baited in the press, and even parodied in the reviews of the year's end, for having ventured to say that he never read. I failed to understand this attitude. Instinctively, in accordance with a good habit of speaking the truth, the poet of *Pêcheurs d'Islande* thought he ought to reveal that "fact of observation" and to give it, as usual, without commentary. In doing this he clearly defined the difference between the two kinds of work, and marked his own exclusive vocation as a poet, as a writer absolutely ruled

by his temperament, careless of literary modes, yielding to no suggestions of either master or school, and satisfied with making eloquent restitution to the outer world of the emotions which he receives from it.

In a very interesting article on Hauteville House at Guernsey, M. Jules Clarétie lets us see Victor Hugo's library. and we learn that the wondrous poet read nothing beyond some very old and shabby books, treating of science or history. His brain, gorged with sensations, saturated with the elements of formidable vibrations, applied itself solely to making them still greater and casting them out in magnificent form with god-like power.

As for M. Zola, he has frequently and most loyally told those who take an interest in his methods that he does not read for the pleasure of furnishing his brain, but almost solely for the purpose of collecting documents for the book in actual progress. His personal labour, the work he is preparing, so completely absorbs his faculty of attention that he cannot interest himself in anything that does not supply fuel to his cerebral machinery, but, on the other hand, he assimilates all that he can utilize with extraordinary ease.

Balzac likewise. It is generally admitted that he had not leisure to read. During his relatively too short and over-burdened life he could hardly find the time necessary for writing what he beheld of the human comedy and all that his marvellous genius divined.

We observe in all these masters a like unconcern with the work of others and the same mode of cerebral action. Like the painters, they get visions from the outside which their brain hardly transforms, and they give them back

more or less magnified by art, and bearing strongly more or less the impress of personal temperament.

Compare this method of the "practitioners" with the human mind to the manner of the theorists. Think of the immeasurable reading, the mass of learning accumulated in the brain of a Sainte-Beuve, an Anatole France, a Soury.

But here I ask leave to demonstrate my meaning. Some absolutely elementary notions of cerebral physiology, aided by a very simple drawing, will tell more, and with greater quickness and clearness, than twenty pages of abstract dissertation.

The drawing, which I have borrowed from the excellent clinical lessons of Dr. Grasset, Professor in the Faculty of Medicine at Montpellier, represents a brain and some of its modes of relation with the world.

Let us suppose for a minute that we are dealing with the unreading brain of M. Pierre Loti, for example, at a moment when the eyes of the poet are caught by some striking foreign landscape. This is what will happen.

The nervous vibrations, which constitute visual sensation, start from the retina and go, rolling closely in succession, along the optic nerve to the ultimate outcome of that nerve, viz. to point V, at that part of the brain in which the faculty of seeing is localized. As this zone is not plentifully furnished with notions accumulated by reading—notions which are transmitted by the same optic nerve and lodged in the neighbourhood of point V—the sensation will retain all its freshness, all its first vivacity, and is about to desire

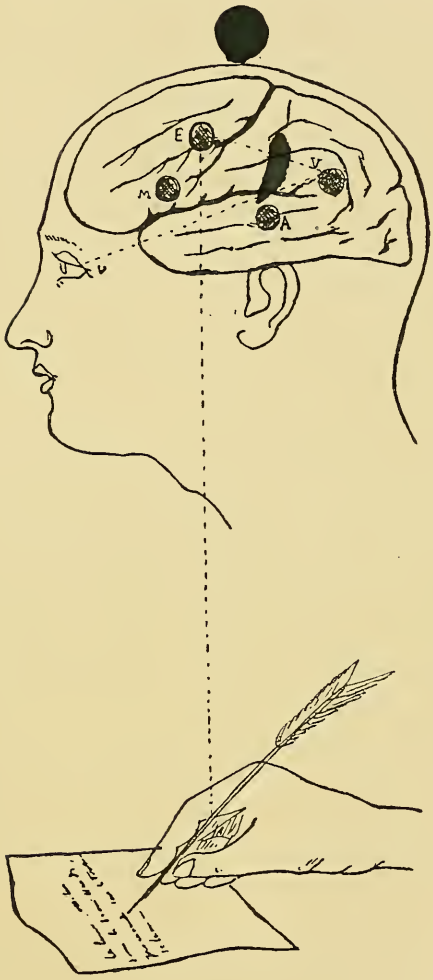

FIGURE 1.

A, cerebral centre for the hearing of words. V, centres for the sight of words. M, centre of articulate speech. E, centre for the movements necessary to writing.

impatiently to transform itself into action, to come out of the brain again, as those things do come out of the brain of a poet, in the form of written language.

And then, in proportion as the optic nerve shall bear the knowledge of the landscape to point V, another vision will arise of itself, will be kindled, so to speak, at the vicinity of point V, and this will be the evocation of symbols, the letters and words which serve us to express that which strikes our senses.

It is under this form of signs that the nervous vibration, always active and only seeking to escape, will go on from point V to point E of the brain, to the zone of writing;[1] it will go there of preference, by habit, since it is now a custom of M. Loti's brain to write his stirring impressions. Now, point E is nothing else than the territory of the brain which commands the movements of the right hand appropriated to writing, by the medium of the nerves, and there is that hand eagerly noting the impression received, in all its first beauty and all the vivacity of its impulsive force.

Let us now suppose that an analogous foreign landscape has struck the retina of a Sainte-Beuve or a Renan. The same sum of sensations will start from point *v* to arrive at V. But it is the effect of boundless reading that the zone of the mental vision, instead of being almost free and

[1] I am aware that many neurologists of great merit refuse to admit a localization of the faculty of writing at point E (foot of second frontal circumvolution), at least in the sense meant by Exner and Charcot, who were the first to make mention of it. But all are agreed in admitting that in this zone E, or in the neighbouring parts, the cerebral point of departure of the movements of the right hand which is used in writing is localized; and this is all that is important for our demonstration.

empty, as in the former case, is extraordinarily populous; it swarms with accumulated notions, recollections, and knowledge, as a street in a capital city swarms with men. It is too much encumbered to be crossed easily and rapidly. Therefore, instead of ricochetting immediately towards the motive region E in order to become an action, an accomplishment, the vision will linger, summoning around it legions of things in harmony with it, the remembrance of similar impressions formed by reading; recalling to itself how all the poets have sung the beauties of landscapes similar to this one.

Having reached the brain the sensation will visit its neighbours, it will stray, and exhaust its force of expansion by wedding itself to former sensations which it will wake up in passing. And Sainte-Beuve's thought will finally evoke Chateaubriand, the father of exoticism, in order that he may write the fine analysis which is known to us all. And the outcome of Renan's mind will be some philosophic page, like that incomparable *Prière sur l'Acropole*, with which he was inspired by the perfection of Greek art, and doubtless also by the intoxicating sight of the promontories of Hellas and the classic waters at their foot.

While the poet will have re-created nature, and made, so to speak, a portrait after a model, the two men of erudition will have been led to comparisons, to reasonings, to philosophic ideas.

And now, we ask, as we did at the outset, which of the two is the greater, he who re-creates life with the most superb intensity, or the other, who regards it and thinks of it in connection with his own sensations?

In theory, doubt does not seem possible.

The most genial creator is, in fact, only a sort of sublime child, half-conscious, blindly obedient to his imperative need to imitate, or it might almost be said to mimic nature. He needs no knowledge of anything except the first rudiment, the fundamental technique, the orthography of his business. The inventor, the man of action, the man who accomplishes great things, whose function is simply and solely a reflex, has only an almost elementary brain, powerful, but limited, much less perfected than the brain of the scholar, much less "differentiated" than that of the man of erudition, the philosopher, and the critic. The proof of this is that criticism is a recent acquisition of human thought, a testimony to its maturity, while Phidias was probably at least the equal of the most famous sculptors of the present time, and one of the virtues of M. Zola's genius is that it resembles Homer's.

The march of the mind of man being from the simple to the complicated, toward less of automatism and more of consciousness, the mind of a critic worthy of that name is manifestly more subtle, more modern, more advanced in the path of progress than the mind of the greatest poet.

Every day, it is true, in some journal or other we may find a vain and pretentious piece of criticism, infinitely beneath the work on which it presumes to pass sentence; but this simply proves that minds capable of true analysis and sound judgment are rare.

The critics seem to be oppressed by any personality which is too great and too near them in time or space. Victor Hugo got terribly on the nerves of Sainte-Beuve, who was very near putting Brisieux before him more

than once. In our own day lavish praise has been bestowed upon the Russian novelists and the Scandinavian dramatists, as though the critics feared to abandon the sceptre to the great writers of France. Even my master, Jules Soury—and how greatly do I admire him!—does justice more readily to Meynert, Küssmal, Betcherew, or Luciani than to Charcot.

I have frequently observed a sort of over-sensitive pride in men of genius which it is hardly possible for them to curb, and its almost foolish manifestations become vexations in the long run to persons who possess greater self-mastery; but is not the modesty of critics a sort of sacerdotal humility, with an underlying craving for praise, and an appetite for honours not at all philosophic?

And then, critics could not exist were there not authors to give them intellectual food and motive for thinking; but philosophy has no influence on the evolution of the human mind; it verifies and records its stages, but does not direct them. It does not go on in front; it comes after, majestically indeed, but slowly.

In his *Jardin d'Epicure*, which I regard as one of the most delightful collections of meditations in existence, Anatole France admirably expresses this inevitable inaction. "Unfortunately," he writes, "the speculative mind renders the man unfit for action. Empire is not for those who want to understand everything. To see beyond the immediate aim is an infirmity. Only horses and mules must have blinkers to keep them from starting out of the track. Philosophers stop on the way, and change the course while walking. The story of Little Red Riding Hood is a great lesson to men of action who

have to carry the little pot of butter and ought not to know that there are nuts in the wood."

The words are charmingly ironical, but they clearly establish that a certain unconsciousness is needful for action, and that it is almost impossible for those who reflect too much and give way to the delights of meditation to attain an end.

The sum of this is that the two tendencies of the human mind, meditative philosophy and creative activity, have their respective greatness and claim our admiration. I must, however, comment upon a fact which I regard as infinitely interesting and significant: it is that fusion of the two kinds to which I have recently alluded.

Let us examine it. It is not writers trained in the technique of their art or artists of matured ability, who, profiting by the personal knowledge acquired in the course of long practice, consider themselves entitled to judge, and late in their career undertake to weigh the works of others. This would seem to be the most logical way, but I know only one man who has adopted it; Bracquemond, by turns a meritorious painter, a master-potter, an incomparable aquafortist, and first-class decorative artist, considers himself, at the close of his career, entitled by so many years of such varied labour, to pass those fully-explained judgments upon the work of some of his contemporaries which M. Brunetière called for in his speech at the reception of M. Henri Houssaye. Let it be observed, also, that Bracquemond writes for no public outside men of art.

But let us see what is happening in literature.

Bourget, Jules Lemaître, and Anatole France began by

publishing critical studies and soon proceeded to give us personal works. Was this because they were conscious that the *rôle* which is restricted to philosophizing upon the literary progeny of others is an inferior one?

Take M. Barrès, for example, who must be regarded, I think, as one of the two or three most acute intellects of our time. Has he not devoted the whole of his charming *Jardin de Bérénice* to drawing up an apology for the *Unknowing*, to urging fertile activity side by side with philosophic meditation, the expenditure of force succeeding to sensitive stimulation?

And, on the other hand, have not these able men clearly demonstrated to us that, when a critic worthy of the name proceeds to action in his turn, he can sometimes excel in personal work and produce the exquisite and the very profound, if not the formidable?

In conclusion, I hold that the young masters of the present time are very wise in striving to be complete master minds, both analysts of the thought of others and creators. It is to them, I fully believe, that renown will wed itself and success will attach, until the day when some gigantic genius of invention, proud, instinctive, almost ignorant, obtuse to all that is not himself, shall dazzle the world by his power, and give rise to a legion of critics occupied in comprehending the phenomenon of himself.

CHAPTER IV.

DOCTORS AND PSYCHOLOGY.

Elementary anatomy of the nervous system—The cerebral cell and the neuron—Cerebral localizations—Modern conceptions of Memory, Personality, Conscience, Will, Intelligence, Language—Sources of knowledge—A professorship of psychology at the Faculty of Medicine.

In seeking to draw a physiological distinction between the brain as creating and the brain as exercising its critical faculty, between active and meditative thought, we have had recourse to a plan or illustration, greatly simplified, but clear, of a few "localizations." That drawing indicates nothing but the topography of the four centres necessary to the production of language, spoken or written. It gives therefore only a very partial idea of the complex function of the human brain, and we must complete it if we would go farther in that medical study of the mind which we are now attempting.

Of what use to us is our brain? This is the question which we must now discuss with the simplicity and brevity that belong to the general scope of this book. Large works would be needed to condense the discoveries of physiologists and physicians which have furnished

modern psychology with all its precision and scientific security, and to draw from them the conclusions and general views which are their logical result. This great work has been done. M. Jules Soury—in a volume entitled *Les Fonctions du Cerveau* and in his article *Cerveau* in the *Dictionnaire de Physiologie*, edited by Professor Charles Richet—has gathered together a great number of historic documents and scientific facts; his work seems to me the grand monument of the history of the human mind.

But, so far as I know, there does not exist a simple and elementary resumé, clear enough to be accessible by the least attentive mind, not diffuse but yet containing all the essential discoveries of advanced physiology, which to me are as captivating as romance. It is this I would attempt here. Urging no claim to precision of detail, and intending only to treat the subject superficially and to avoid difficult words, I believe I shall be able to give a true and sufficient idea of the working of the brain, and of medicine-born psychology, for those who are without technical education.

But it is indispensable that we should acquire, at the beginning, a few rudimentary notions of the general anatomy of our nervous system,—and this little excursion to the country of Psyche has an arid starting point.

I.

One is now taught in the primary school that our skull is a box of bone protecting a large mass of substance which is at once very fragile and very noble, the brain;

that the spinal column covers and protects in the same way a stem of much the same substance, the spinal cord; that, in every part of the body, the anatomist finds, with the arteries and the veins, white threads of similar structure in company with the cord and the brain; these are the nerves.

Brain, spinal cord, and nerves all hold together and form a vast whole, with ramifications everywhere; these come from all parts of the body, the nerves unite with the spinal cord, which itself joins the brain, and this grand apparatus—(we shall avoid naming everything in it that it is not indispensable for us to know)—is the most delicate and the most important part of our organism: it is this which commands and makes the rest live and act. Nothing in the three kingdoms of nature has so high a function: here reside the vitality, the energy of each of us. It is the incarnation of the soul, its elements, so to speak, and its material aspect.

The following perfectly simple diagram will give a sufficient idea of the form and arrangement of the brain with respect to the spinal cord and to a type nerve.

It should be noticed that the nerve is attached to the spinal cord by two roots. One (*r.m.*) joins in front; the other (*r.s.*) passes round it to implant itself behind it: the latter is distinguished from the former by the presence in its course of a slight enlargement, a nervous ganglion (*g*). Each of these two roots, which are of different form, has its quite distinct function. Cut the anterior root (*m.r.*), and all the muscles placed in this nervous department will instantly be paralyzed: the possibility of their

moving is destroyed. If, on the contrary, you cut the posterior root (*r.s.*), the corresponding region will at once lose its sensitiveness: pricking, pinching, burning, nothing will be perceived by the animal.

The anterior root is, therefore, the *motor*, and the posterior is the *sensitive* root, while the nerve itself and its ramifications are mixed, that is to say, they serve indifferently to convey impressions coming from the outer world or from our own selves to our nervous centres and to carry the order to move from our nervous centres to our obedient muscles. And there is our whole human 'being': first we feel, then we act. The mechanism of life consists in taking in sensation and giving back action.

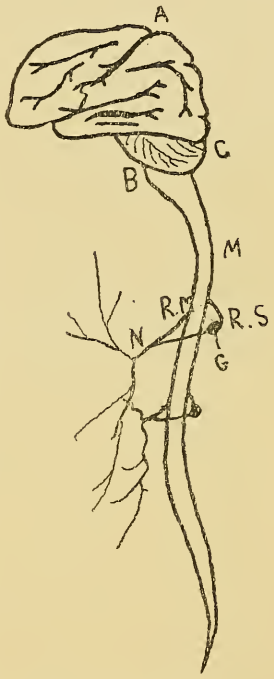

FIGURE 2.—*a*, brain; *b* bulb; *m*, spinal cord; *n*, nerve with its ramifications; *r.m.*, motor root; *r.s.*, sensitive root.

Thus a primordial element in nervous physiology and in psychology is revealed to us by this very simple experiment of the section of the roots issuing from the spinal cord. Without being pedantic, we may remember that the discovery dates from 1822, and is due to a famous French physiologist, Magendie of Bordeaux.

Moreover, a child, without being a physiologist at

all, can reproduce upon himself—without vivisection—another little experiment which gives an exact idea, reduced to its simplest expression, of every nervous action. This is how it is necessary to proceed.

Sit down, cross the left leg over the right knee, then, with a small hammer or anything else, give yourself a quick tap below the left knee-cap. After two or three experimental attempts, you will hit exactly on the tendon, and the leg will immediately give a start, which you will not be able to prevent.

This phenomenon, which is called the "knee-cap reflex," is produced by the following mechanism. The hammer stroke mechanically shakes the nervous terminations expanded in the tendon; a vibratory wave (its velocity has been measured) runs back all along the nerve, travelling by the sensitive root, *r.s.*, traverses the spinal cord, is there instantly transformed, and, issuing by the anterior root, *r.m.*, runs towards the muscle of the thigh (which is attached to this tendon of the knee-cap) and forces it to contract. An exterior stimulation, a sensitive phenomenon with centripetal movement, is metamorphosed in the spinal cord into a centrifugal phenomenon, into movement, into action. This is a "reflex"—the going and returning of a nervous vibration, sensitive in the first part of its course and motive in the second.

Now human life, taken altogether, is but a continuity of reflex actions, a little more complicated than this for the most part, but of analogous mechanism. This "phenomenon of the knee," as the Germans call it, is the A B C, the first rudiment of psychology as at present

understood. It is besides of only elementary interest, since the will does not intervene in it. Reflexes of a higher order are evolved in the brain, where a great part of the motor or sensitive fibres of the nerve roots implanted along the cord are formed. We now know enough to attempt an anatomical view of the brain. It is an arduous and difficult thing when one wants to study it profoundly, but the strictly necessary knowledge may be reduced to little. Two figures and a few lines will render all that is to come after sufficiently intelligible.

Our brain, as indeed the whole of our nervous system, is symmetrical and double, so that we have in reality two brains, a right and a left, almost entirely separated by a deep dent running from front to back, from the forehead to the nape of the neck.[1]

It is therefore sufficient to study one of these two hemispheres—the left, for example. The accompanying plan shows its configuration.

The black lines of this drawing represent the furrows made by nature on the surface of the substance of the brain, and these furrows separate rounded protrusions (*bourrelets*), represented by the parts left white in the schéma, which are disposed in the same regular order in the brain of every human being, and are *circumvolutions*. Each of these circumvolutions has a name (see explanation of figure); the names are barbarous, and not

[1] At the bottom of this inter-hemispheric furrow, a bridge of white matter, the *corpus callosum*, unites the two brains and associates them, so that whatever touches one cerebral hemisphere never fails to resound in the other.

necessary to be borne in mind for the understanding of what follows.

It is really important to know that the exterior layer, or, as it is called, the cerebral cortex, thickset with folds, with circumvolutions, is made of grey matter, while the subjacent parts in the interior of the brain are made of white matter striped with fibre, as may be seen in the very simple figure (4).

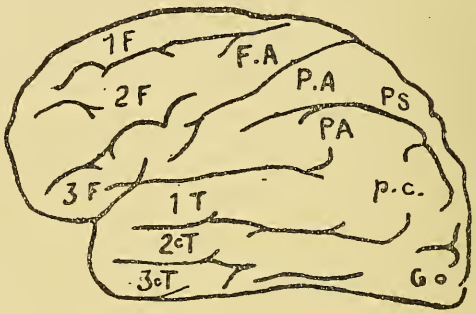

FIGURE 3.

1 F., 2 F., 3 F., 1st, 2nd, and 3rd frontal circumvolutions ; F.A., frontal ascendant ; P.S., upper parietal ; P.G., curved fold ; G.O., occipital circumvolutions ; 1, 2, 3 T., temporal circumvolutions.

The white fibres of the central parts of the brain are nothing but threads of transmission which unite the grey matter to the spiral marrow and, by it, to all the nerves of the organism. It suffices to know that on egress from the brain and entry into the marrow at the level of the bulb these fibres cross over each other [E. P. crossing of the pyramids], so that it is the left brain which presides over the movements of the right side of the body, and the right brain which commands the movements of the

left side. But these fibres are only telegraph wires, only threads of transmission.

The grey matter is of superior substance, and in it all the essential phenomena of cerebral action resides.

The microscope shows us that the grey matter is chiefly formed of large cells, more or less triangular,

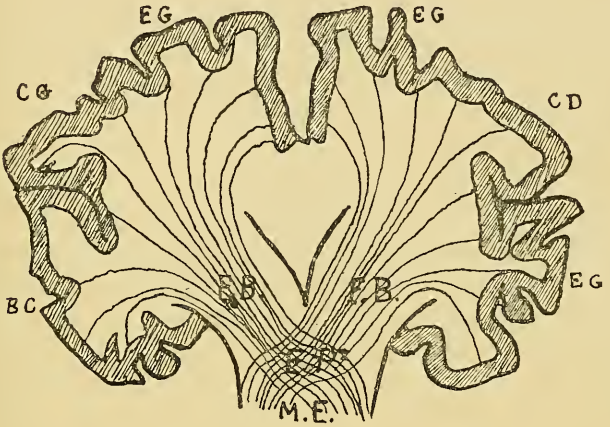

FIGURE 4.

C.D., right brain; C.G., left brain; E.G., grey cortex; F.B., white marks; E.P., crossings of the pyramids; M.E., spinal marrow.

furnished with entangled prolongations which carry their branches far, and make this grey matter resemble a virgin forest encumbered with lianas, or, to be more prosaic, like a thick felting.

Let us regard those pyramidal cells of the cerebral cortex with respect: they enable us to feel, and consequently to think. If you admit nothing that is not material, that cell, the culminating point of the three

kingdoms of nature, is the last Buddha which remains to be honoured; and you may look upon it as a kind of god, since it reveals the world to us, and creates it for us, so to speak. But you who feel yourself to be an immortal soul made in the image of a Creator, you too may consider that little black spot whose outline I show you, with respect: it is there that Psyche was incarnated, it is there that the Spirit descended. It is the mysterious point at which metaphysics come to an end and all that our feeble senses are capable of knowing has its beginning.

2.

It is only of late that anatomists have had any precise knowledge of these brain cells, of their connections, and all that belongs to them. The quite recent discoveries of Golgi the Italian, and especially of the Spaniard Ramon y Cajal, were needed to initiate us into this valuable knowledge. This is the substance of their teaching; and readers who know but little of the arcana of histology will be able to follow our explanation easily, if they only consult the subjoined diagram.

The large nerve cells of the brain cortex are furnished with cornate prolongations always disposed in the same order. These prolongations are of three kinds: lateral prolongations (*p.l.*), head prolongation (*p.p.*), and nerve prolongations (*t.n.*).

This last prolongation, starting from the middle region of the base of the cell, forms the nervous tube, and becomes one of those conducting fibres of which, as we have said,

FIGURE 5. OUTLINE OF A LARGE PYRAMIDAL CELL OF THE CEREBRAL CORTEX.

c, body of the cell ; *p.p.*, protoplasmic prolongation, tending toward the cell ; *t.n.*, nerve tube, leading from the cell and prolonged straight to the spinal cord ; *b*, collateral branches, whose function is to come in contact (without continuity) with neighbouring neurons ; *n.s.*, sensitive nerve tube, ascending in direction and bringing external stimulations from without ; its ultimate ramifications come in contact with the hairy tuft which surmounts the protoplasmic prolongation of the cell.

the white substance of the brain is made. In a single unbroken line, this prolongation sets out from the cortex, descends into the white substance, crosses, at the level of the bulb, the fibres coming from the other hemisphere, descends into the spinal cord on the side opposite to that from which it came, and stops only when it has reached a certain point where it terminates in entwining itself around a motor cell of the spinal cord. There a relay takes place, and from this motor cell a new conducting filament starts in its turn and travels in the trunk of the nerve as far as the muscle; it is its mission to make the latter act. Thus the lower or nervous prolongation of the brain cell.

Its prolongation from the head, (*p.p*) (protoplasmic prolongation is the usual term), is very much shorter; indeed its length is microscopic. In proximity to its arborizations are the terminal ones of the centripetal nerve tube (*n.s.*), which brings the sensations of the outer world.

This is the place to say a word of a fascinating and quite modern hypothesis,[1] set forth in Germany by Rabl Ruckhart and Wiedersheim, and in France by Mathials Duval and Lépine (of Lyons).

The hypothesis, moreover, is probable, and throws strong light on a number of psychical phenomena which are not easy to understand.

Waldeyer gave the name of *neuron* to the nerve cell and its prolongations as a whole.

[1] See the excellent thesis of Dr. Charles Pupin on "The Neuron and Histological Hypotheses concerning its Mode of Working" (Paris. Steinheil, 1896). M. Pupin is the esteemed secretary of the Faculty of Medicine.

The neuron extends from the tree-like terminations of the protoplasmic prolongation (*p.p.*) to the terminal arborizations of the nerve tube in the spinal cord. Ramon y Cajal has proved conclusively that the neuron constitutes a distinct individuality, without relations of *continuity* with anything else whatever. It is established that a nerve cell and its prolongations have relations of *contiguity* only with the prolongations of neighbouring cells.

The nerve wave is transmitted from neuron to neuron only by contact. Now, this contact may not be constant, it may exist only at certain moments of life. Like the amœbiform cells, which have the power to stretch out arms or bring them back within themselves, to put forth or draw back *pseudopods*, the brain cell might, in its moments of high vitality, lengthen its tentacles so as to bring them into contact with its neighbour's tentacles or, on the contrary, draw them back in the hours of repose and sleep.

Let us consult the figure which we have already used. A sensation, a nervous centripetal vibration, comes to the brain by the sensitive nerve tube (*n.s.*). If the brain is in the state of active waking, the tree-like branches of the prolongation of the head (*p.p.*) of the cell (*c.*) are, so to speak, swollen, stiffened, erected, and therefore they will come in contact with the arborizations of the sensitive nerve: the sensation will accordingly be perceived and a corresponding act may be the result. But if the brain, being tired, is sleeping, the same protoplasmic ramifications (*p.p.*) will remain retracted, withdrawn into themselves; there will be a distance between them and the sensitive arborizations, and the transmission will not take place.

It will be the same for the collaterals (*b.*), whose office it is to connect two neighbouring neurons by contiguity.

Thus the brain already appears to us as the culminating point of our higher reflexes. It is an organ in which sensations change into acts, and the angle of that reflection, the changing of the centripetal phenomenon (sensitive) into a centrifugal phenomenon (motor) occurs at the exact point where the ultimate terminations of the sensitive neuron come in contact with the first arborizations of the motor neuron, that is, of the tuft which rejoins the brain cell at its upper angle. This is the mechanism of our simple, sudden, and unreflecting actions.

But the brain also appears to us as an organ of association; our mental representations, new or old (for images fall asleep and awake in our cells, this is called memory), may visit each other's neighbourhood, and add and compare themselves together, owing to the innumerable collaterals (*b.*) and also to the transverse neurons which, going from one cell to another, join the most distant points of the cortex in every direction, secure co-operation in its functions, and permit judgment; there is the key to our associations of images and ideas, our meditations and generalizations. And therefore Meynert was enabled to pronounce the brain "pre-eminently an organ of association."

3.

The elementary notions which we have just acquired concerning the brain cell already give us a glimpse of the meaning of the word "localizations."

The sensitive nerve fibre, which starts from the end of the little finger, after a relay in the lower part of the spinal cord, ascends to a fixed place in the brain, and this place is the same in every human brain. Its terminating point is changeless: that is the essential principle of cerebral localization.

The question was, however, not put in this way. The history of that discovery which was to revolutionize psychology is well worth narrating briefly.

The doctrine of localizations has its far-off germ in the Pythagorean theory of the three souls, also in those of Plato and Aristotle; and since their time, almost all biologists have sought the anatomical seat of the functions of sense and intelligence either in the ventricles or cerebral cavities, or in the body of the encephalus itself. Starting from the primary idea that there exists an immaterial principle superior and exterior to the organism presiding at the intellectual and sensitive functions; convinced, on the other hand, that there must be a point of junction between this principle and the body, the greatest philosophers and the best anatomists of the seventeenth and eighteenth centuries applied all their genius to finding this meeting point—this seat of the soul. Descartes places it in the "pineal gland," because that is the only median and single organ of the encephalus, and La Peyronie, the surgeon, places it in the *corpus callosum* (white substance which unites the two hemispheres), because experience had shown him that lesions of that part only are accompanied by derangement of the feelings and the reason.

At the beginning of this century, the doctrine of the functional homogeneousness of the brain was that in favour.

It was then held that no part of the hemispheres has a differentiated function. Gall was the only dissentient, but he, still a groping and stumbling precursor, "had attempted to divide the cerebral mass into a certain number of separate compartments, independent of each other and possessed of its own distinct properties. The exaggeration of his doctrine, the uncertainty of his methods, had compromised that which was really good in his work, and cast discredit on the very principle of brain localizations" (Charcot and Pitres).

Bouillaud, disregarding the phrenology of imagination, held with unwearied tenacity to the search for the anatomical seat of language by clinical observations and autopsies. He believed that he had found it in the front lobes. It was only in 1862 that Broca proved by a great number of facts established by strict observation, that *aphasia*, the suspension or abolition of articulate language, is constantly due to a destructive lesion of the base of the third left frontal circumvolution, which is now called Broca's circumvolution.

Then discovery was suspended for a time. In vain did Jackson recognize that certain superficial lesions of the brain, particularly tumours and foreign bodies irritating the grey matter, might determine partial convulsions, which varied according to the region touched. Our most famous physiologists, Longet, Magendie, and Flourens, proclaimed that the brain, the organ of the intellectual faculties, was functionally homogeneous throughout its mass, and that it played no part in the production of the movements of the body.

Flourens, who was permanent Secretary of the Académie

des Sciences, Member of the French Academy, and altogether an eminent man of science, had removed the hemispheres of pigeons and frogs: the pigeons had been able to fly, and the frogs to swim.[1] He asserted firmly that the brain is not used in our movements.

It was then that two German savants, who were still only students, Fritsch and Hitzig—names never to be forgotten—by a series of absolutely decisive experiments on the dog, brought to light three fundamental ideas:—

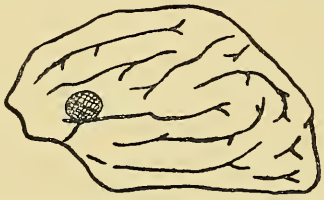

FIGURE 6.—CEREBRAL HEMISPHERE (LEFT).
Broca's localization (seat of the function of articulate language).

(1) In each of the cerebral hemispheres of the dog there are certain zones the electric stimulation of which determines localized movements in the paws on the opposite side. (The stimulation of the right hemisphere produces movements in the paws of the left side, and *vice versâ*.)

(2) The destruction of these same zones produces paralysis where the stimulation produced movement.

(3) These zones always occupy the same anatomical point; moreover, they are circumscribed: a few milli-

[1] It has since been demonstrated that this is due merely to the medullary reflexes of which birds and batrachians are capable, even when deprived of their hemispheres; the movements are not voluntary, but automatic.

metres farther on neither electric irritation nor the mutilation of the cortex sets up motion or paralysis.

Henceforward the discovery of the principle of cerebral motor localizations was an accomplished fact. At once a great number of scientific men in Germany, England, Italy, and France—Nothnagel, Schiff, Goltz, Hermann Munk, Eckhardt, David Ferrier, Albertoni and Michieli, Luciani and Tamburini, Carville and Duret, Franck and Pitres—accumulated complementary experiments and described motor localizations in the animal which is nearest to man —the monkey.

But when the question to be solved with scientific certainty was whether this discovery held good for the human brain, the savants of the laboratory were obliged to recognize their powerlessness, and to leave the solution to clinical physicians. This was the occasion of a great victory for the school of La Salpêtrière.

Beyond Broca's discovery, which remained without result, and a few observations by Hitzig, Bernhardt, and Lépine, next to nothing was known of the functions of the brain of man, and only obscure and contradictory facts were published, until the genius of Charcot shed its bright light on the matter. In a joint communication by himself and Pitres to the Society of Biology in 1877, Charcot laid down the rules of the "anatomo-clinical" method, and showed the conclusions to be drawn from the comparison of lesions found during autopsy with the morbid symptoms—localized paralysis or convulsions —registered during the life of the subject.

From 1877 to 1883 these two French savants unceasingly accumulated conclusive observations, and soon

the savants of the entire world had to come over to their opinion. Profiting by the physiological researches of Ferrier and Munk, a few patient and sagacious observers discovered the zones which serve us in the perception of auditory and visual sensations in the back part of the encephalus—so that we are now able to present the accompanying map of the geography of the brain (fig. 7).

At present, neurologists of all countries are agreed not only upon the principle itself and the doctrine of localization, but also upon the anatomical seat of the various functions indicated by the following nomenclature. Without going into long details, we must be precise here.

Zones *a*, *v*, *g*, are, obviously, the ultimate outcome of the auditory nerve, the optic nerve, and the nerve which carries the sensation of taste. The olfactory nerve finishes its course at the internal part of the hemisphere, in a point which cannot be represented on the figure. Such are the zones called *sensorial* (fig. 7).

The other zones are called *motor*, and it is true that they preside over all our movements; but the majority of contemporary neurologists consider them *sensitive* as well, and this is what they mean.

At point *g*) for example, are the end of the sensitive nerves belonging to the articulation of the knee, the bones, the aponeurotic membranes, the tendons, skin and the muscles which surround or constitute it. This zone is constantly apprized of the least movements which occur in the middle part of the lower limb; it is the place towards which all its sensations con-

verge, in which all its motor images, the remembrance of all past movements, and, consequently, the possibility

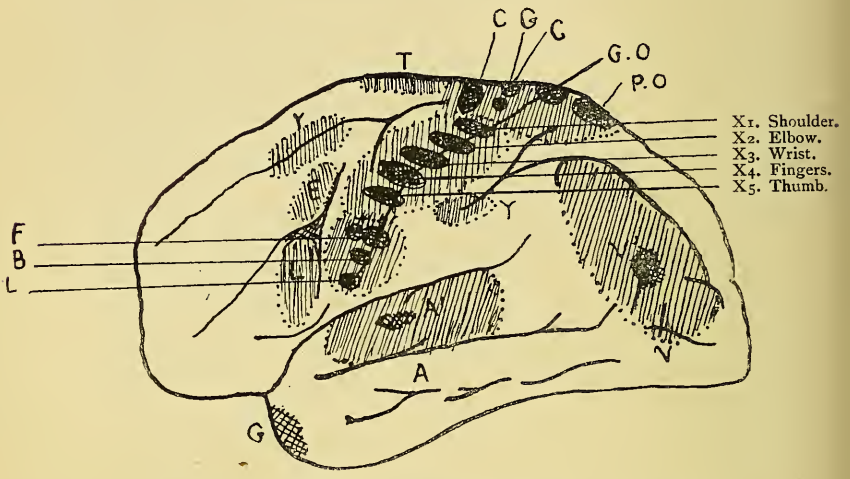

FIGURE 7.—LOCALIZATIONS IN THE LEFT CEREBRAL HEMISPHERE.[1]

(From *Le Manuel de Médécine* by MM. Debove and Achard.)

A, centre for hearing ; *a'*, special centre for hearing words ; *v*, centre for sight ; *v'*, special centre for sight of words ; *g*, centre for taste ; *l*, centre of articulate language ; *e*, centre for writing ; *t*, centre for the movements of the trunk ; *y*, centre for the conjoint movements of the head and the eyes ; *y'*, centre for the movements of the ball of the eye ; *f*, centre for the movements of the face ; *b*, centre for the movements of the mouth ; *l'*, centre for the movements of the tongue ; *c*, centre for the movements of the thigh ; *g*, centre for the movements of the ankle ; *g.o*, centre for the movements of the great toe ; *p.o*, centre for the movements of the small toes.

of reproducing them are stored. If a lesion—such as results from cerebral hemorrhage, from an apoplectic attack—

[1] The same localizations are found on the right side, excepting the localization of articulate language (Broca's circumconvolution).

destroys this department of the cortex (*g*), immediate paralysis follows, not due, strictly speaking, to the abolition of a zone motor, but to the suppression of the motor images preserved at this point; and henceforward movement becomes impossible, solely because the brain cells, being destroyed, are no longer there to conceive movement.

This applies to all the regions called motor, which, in reality, are only the last end of the sensitive nerve and the starting-point of the centrifugal nerve that bears to the muscle only the true motor element—the order to contract itself, to accomplish the movement which has been willed.

4.

If we examine the diagram which shows us the whole of the localizations on the external face of the left hemisphere (fig. 7), we see that there are territories of the cortex destined to receive our auditory, visual, olfactory, and gustatory sensations; that other zones gather up all the sensations coming from different parts of our body and preside at the movements of those parts; and, finally, that at the base of the frontal circumconvolutions there is a little department (*l*) charged with securing the action of the function of articulate language, and another (*e*) which presides over written language.[1]

And is there nothing else? Can we not discern either the seat of Intelligence or that of the Will, or the

[1] This localization of written language, described by Exner and Charcot, is regarded as doubtful by a considerable number of neurologists. According to them, writing has no other zone than that which presides over the movements of the fingers and the hand, and is situated a few millimetres behind zone *l*.

dwelling-place of Memory, or that innermost recess where dwells the Ego, where Personality is ever waking?

Nothing of all this, indeed, can be seen on a cerebral cortex, for the very simple reason that the words Intelligence, Will, Memory, Personality, do but designate abstractions which were given to us, in our philosophy class, for psychological entities having an existence of their own. They were the Faculties of the Soul.

Contrary to the classical psychologists who begin by considering each of these faculties, doctors, like Descartes, get rid of all they have been taught, and apply themselves in the first place to the physiology of an organ —to the working of the brain only. The brain appears to them as a sort of machine, very complicated as to the multiplicity of its wheels, but simple enough in its principle—a machine for receiving, here, auditory images, and there, images coming from the sense of smell, in (*v*) visual images, in (*g*) those of taste, elsewhere motor images, and transforming them into gestures, movements, and written or spoken language. These various images, before they change themselves into actions, may—if they are not too imperious, too violent, too impulsive—draw together, associate themselves with others, take time to measure themselves with older images which slept and which they resuscitate on their way.

There we have the whole brain.

And this brief description of the cerebral mechanism will be sufficient to furnish us with the scientific and physiological definition of what are still called the faculties of the mind.

Memory is the essential, fundamental function, and it is also the most mysterious. It is the property which the

brain cells possess of keeping images in the state of sleep and of making them awake, of resuscitating them on the spot, under the influence of an external stimulation, of a quicker circulation in this district of the encephalus, or of a propagation of nerve wave from one group of cells to a neighbouring group.

We are not to regard this property as peculiar to the noble and highly differentiated tissues of our nervous centres. Natural history teaches us that memory, the gift of keeping a sensitive impression and of making it revive, is a wide-spread property of matter. Meynert has shown that the *amphioxus*, which has no brain, has nevertheless psychical memory and existence, and there are even certain steel plates, which having once received the imprint of a finger, can reproduce it, after a disappearance of several days, under the influence of strong light.

Human memory, then, resides wheresoever a sensitive nervous fibre ends in a large cell of the cerebral grey matter; it is only the residue of our old sensations, a residue always capable of resuming life under the influence of fresh stimulation. This anatomical conception of memory does not indeed give us the key of everything, and we are far from understanding the strange power of non-being, sometimes for a long period and of coming to life anew, which our sensations possess; but nevertheless it is something gained that we no longer conceive the faculty of remembrance as one and indivisible.[1]

The definition of Memory leads us at once to that of

[1] Memory is a singularly complex and manifold phenomenon. We have memories and not *a* memory; but my plan in the present work admits only of a concise and superficial exposition of the phenomena of Mind.

Personality. Our Ego no longer appears to us as other than the sum of our hereditary tendencies and of our sensations prior to the present moment: this is the whole of our knowledge. The word "I," when we pronounce it, signifies all our psychic past, awakened with more or less vividness by a new sensation. "I have scratched my hand with a pin" has, physiologically, the following meaning: the nerves of sensation in my hand have this moment brought to a group of cells situated towards the middle part of the frontal and ascending parietal circumconvolutions (see fig. 7) an acute sensation; this sensation has awakened, in the cortex of my brain, the memory of former sensations of the same order, and these former sensations, comparing themselves with it, have recognized and made of it Perception.

Personality then may be defined as "the memory of former sensations, kept awake by the recent sensations by which it is constantly being augmented."

What, then, is Consciousness? Have we not just said what it is: there is consciousness when a present sensation is perceived or, if you prefer it, recognized by former sensations. And let me observe here that nothing of what comes to our brain cortex is altogether unconscious: the word unconscious, taken absolutely, has no meaning, since nothing exists for us of which our brain cells have not taken cognizance through the medium of our nerves of general or special sensibility.[1]

[1] In physiology, we call "special sensibilities" sight, hearing, smell, and taste. The word general sensibility is applied to all centripetal phenomena coming from the skin, muscles, tendons, articulations, aponeuroses, whether sensations of movement, contact, pricking, pressure, burning, or cold.

But there are numerous degrees between full consciousness and the very obtuse sub-consciousness of certain 'subjects.' Dr. Pierre Janet's works on *L'Automatisme cérébral* and *L'Etat mental des hystériques* have contributed largely to give a sound scientific idea of consciousness and sub-consciousness.

Memory is also the essential machinery of our Will. To will, we have already said, is to compare—it is to put a recent, very impulsive sensation, accompanied by a strong tendency to act, in parallel with the notions formerly accumulated by education in our cerebral cells. A struggle follows in which the stronger feeling triumphs over the weaker, according to the law of all nature. In the well-balanced brain of a man unweighted by heredity, brought up among good examples, the wise notions resulting from the experience of his forefathers, of his teachers, and of himself, easily subdue rash impulses and sudden reflexes. But how is the son of a drunkard, brought up amid the perpetual quarrels of father and mother, and brought in contact from his youth up with the lowest of his kind, to avoid falling into evil ways? In short, our doctrine, which is that of the great majority of contemporary biologists, has already been sufficiently set forth in the second chapter of this book, when dealing with the relations of medicine and justice. It is almost as different from the theories of Lombroso as from the old conception of free-will which was taught us at school.

After all that has just been said, we shall not be asked for the localization of Intelligence. Evidently, it is everywhere in the cortex, since it essentially signifies the

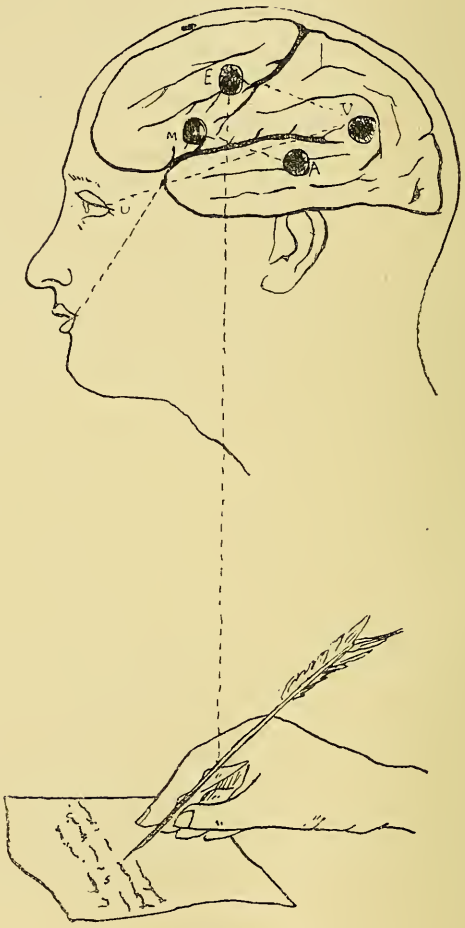

FIGURE 8.

A, cerebral centre for the hearing of words; V, cerebral centre of verbal vision; M, cerebral centre of articulate speech; E, cerebral centre of the movements necessary for writing.

association of images and ideas, comparison and judgment. Its working is secured by the innumerable collateral fibres, which unite—by contiguity—the sensitive or motor neurons, and by those neurons of association, which run in every direction from one point to another of the cortex, and cause the most apparently distant territories to join and unite functionally. What has been said of the critic's brain (in Chapter III.) dispenses us from recurring to the anatomical differences, so to speak, of the creative intellectual function and of meditative reflection.

The figure which was then used to embody our thoughts will suffice to procure a rudimentary but just and sufficient notion of the function of Language.

In the new-born child, the zone (A) (auditory centre) is the first to awake: while still blind, he starts at noises in his neighbourhood; and it is by this zone also that his brain will be enriched with the first constituent elements of speech. It is there that the auditory images of the syllables of which words will be composed will fix themselves. Now this territory (A) is fully associated with the point (M) (Broca's circumconvolution), upon which all the movements of the larynx, tongue, and mouth which serve for the articulation of sounds, depend.

This is what happens when a child succeeds in pronouncing for example the syllable *ma*, which, twice repeated, he will afterwards use to designate his mother. This syllable is constantly repeated to the child: each time, that sonorous wave sets vibrating the terminations of the auditory nerve in the ear, which it follows to the point where it ends in the cerebral cortex (A). But

that vibration is always tending to escape. It is a force that has come into us and wants to go out: here as elsewhere, sensation demands to be changed into action, and the first part of the reflex, centripetal vibration, commands the second, centrifugal vibration. The nerve wave does not then stop in (A), except to leave the memory of it; it goes on its way and, following the fibres of association, (A.M), like the wire of a telephone, it ends in (M). After some days, the way has been cleared: the movements of larynx, tongue, and lips necessary to the articulation of the syllable *ma* have been harmonized, and, after a thousand fruitless attempts, the young mouth in its turn says, "mama," without any affectionate intention, but from the mere need to imitate, to restore a thing received, to accomplish a reflex. A little later the word, at first purely mechanical, will be associated with the visual image of the familiar being who gives food and warmth, who ministers, and the word "mama" will take its real meaning.

The physiology of writing is identical, save that it is the *visual* image of letters, syllables, and words that reaches our brain by the optic nerve, arrives at point V, and escapes by point E, which presides over the movements of the fingers associated for writing.

It would take a volume to tell the extreme complexity of that apparatus of language, which the different forms of aphasia have made it possible to analyze and dissociate.[1] For I cannot repeat it too often—it is to clinical

[1] Aphasia is the paralysis of speech caused by the destruction of one of the zones essential to language. If a cerebral hemorrhage destroys Broca's circumconvolution (M), the faculty of articulating

physicians that man owes his ability to form any precise and concrete idea of the manner in which he speaks, remembers, wills, thinks, and acts.[1]

5.

But what do you make of the Soul? someone will ask. To what dreadful materialism are not you leading us with your wanting to look on our mind as nothing more than a machine with more or less complicated reflexes! We know, indeed, that physicians have found under their scalpel localized zones and fibres of association whose action enables us to understand the play of the psychical faculties a little better than our fathers did. But—yes or no—do you consider that man has an immortal soul, or do you teach that absolutely all dwells in these brain cells, in these neurons of which you have just described the form, the connections, and the action?

It is impossible to evade such a question, the only one, indeed, that has serious interest for minds full of doubt concerning the truths of faith and desirous to know,

words is abolished; the destruction of zone V makes it impossible to recognize the meaning of things which are read; if it be the region A that is affected, verbal audition is suppressed; and, in case of a destructive lesion of territory L, the impossibility of reproducing associated movements for writing ensues. It has been proved that the destruction of the visual image of words alone is enough to destroy the possibility of writing; and even troubles of verbal audition tell seriously upon all the rest of the apparatus of language. That apparatus is extremely complex; I believe it may be said that each of the syllables of each of the words of each of the languages that we speak has its localization in a cell of the grey cortex, at A, V, M, and L.

[1] The most important collaborators in this admirable work, after Bouillaud and Broca, are Küssmaul, Wernicke, Charcot, Seppilli, G. Ballet, Dejerine, Marcé, Pitres.

once for all, whether science leads to irreligion and, as is said, to materialism.

I think this answer may be given :—

We have seen that our personality is made up solely of tendencies inherited from our ancestors and of ideas brought to our brain by our senses, the only source of knowledge. We can have no relations with the world other than those procured for us by the retina, the ends of the auditory nerve, the olfactory, and the glosso-pharyngeal nerves, and through the sensitive clusters of nerves in our skin, mucous membrane, muscles, articulations, and tendons. These sensitive peripheries can send to our brain nothing but nervous vibrations which we call sensations of colour and form, sound and tone, smell, taste, weight, consistence, heat, cold, movement, or repose. And man seems to be bathed in an ocean of various vibrations which are changed, on contact with his nerves, into nervous vibration, and, under that form, reach the grey matter, the place of consciousness.

These vibrations which affect and modify us unceasingly are, it must be repeated, all that we know of the world. Vibrations of what? Of Matter, perhaps. I say perhaps, because we know nothing about it; there is not a being whose existence *in se* can be demonstrated, since we can know things only by their exterior attributes, their form, colour, odour, taste, or by the sensations procured by contact with them, "All else is unknown to us, and for ever unknowable," as a master has said; and we have no resource but to compare our senses one with the other, and with the senses of others like us.

The impossibility of mankind's knowing anything *in se* is

absolute; the science taught in schools under the name of *ontology*, or of metaphysics is utterly vain; and, far from being materialists, we can only be idealists, after the fashion of Berkeley, Hume, Stuart Mill—or, to express it better, mechanists.

To this conception scientific knowledge inevitably leads; and there its domain ends.

It cannot then pronounce on the question of knowing whether Nature has been created by an all-powerful God whose Providence watches unceasingly over us, and whether, on the large pyramidal cells of our grey cortex, there is superposed a free and immortal Soul. Neither God nor the Soul can come under our senses, since they possess none of the attributes which we have enumerated: nothing of their Being can come within our consciousness: science therefore must be absolutely indifferent to understanding them.

Remember Faust's answer, worthy of a true philosopher, to the tender questioning of the pious Marguerite: "Who would dare to name God and to say, I believe in Him? and what sentient being would take it on himself to say, I do not believe in Him?"

But there is not only natural science. Theology, too, has its methods, which allow it to affirm certain truths. It admits Revelation as a source of knowledge—Revelation preserved and handed down by tradition and the Holy Scriptures. Provided they do not mingle their methods in any way and do not trespass on each other's domain, science and religion may live together side by side and do good.

In the second part of this book we shall see how

the more extensive, deeper knowledge of the brain of man may lead to a system of morals, and how scientific morality and religious morality may, in a measure, aid each other and help to lessen human suffering. Their only point of contact, I think, is there.

6.

Psychological science, since it has been in the hands of physiologists and clinical physicians, has achieved progress and gained precision undreamed of only thirty years ago.

The doctrine of cerebral localizations, the knowledge of the nerve cell and connections, the clinical study of the emotions and of the variations of cerebral activity (the subject of the following chapters), have made a true science of psychology, once so confused. It is now the most fascinating chapter of our natural history, and precise as a French garden.

It is to physicians that we owe this fertile evolution, this multitude of keenly interesting new ideas. It is deeply to be regretted that our Faculties of Medicine have not yet been endowed with a Chair of Physiological Psychology, so that our students might learn, not only to know the workings of the brain better, but also to think, to conceive general ideas, to elevate their morality and their intelligence together. Who will inaugurate that reform, who will place the Chair of Medical Psychology, which a master like Jules Soury would fill with renown, between the Chairs of Neurology and mental diseases at La Salpêtrière ?

CHAPTER V.

HUMAN FATIGUE AND HUMAN STRENGTH.

Overwork in our day—Rest—Training for intellectual work : the two Dumas, Balzac, Victor Hugo, Michelet, Madame George Sand—Physical training : bicycle and brain ; Dr. Lagrange and Mosso —Dr. Jules Chéron's book, the law of hypodermics, effects of saline injections—Sources of human strength—Mechanical therapeutics.

I.

From prehistoric times man has had to struggle against foes to his strength. These were wild beasts in other days, and now the enemy is fatigue, the worm in the ripe fruit, the dread adversary of advanced civilization.

This is its method of conquest.

By dint of his ingenuity, man acquires the power of increasing his joys, otherwise the vibrations which his nerve centres find agreeable. In a city like Paris, every day, each one of our senses perceives a prodigious quantity of such vibrations. Artistic life and the life of society are made up of nothing else.

In an interesting work, entitled *Sensation et Mouvement*, M. Charles Féré proves that by merely passing a bright colour before our eyes, or causing a sound to vibrate in our ears, our nervous system is excited to a point that momentarily increases our strength.

I close my eyes so that there may be no impression on the retina: my right hand grasps a dynamometer and gives fifty-five kilos as the result.

I look for a moment at bright red or shining green; my right hand at once becomes capable of pressing the dynamometer to the amount of sixty-five kilos. But this excitement is for a moment only; it is immediately followed by a prolonged lassitude, and, for two or three hours after the experiment, I can give only forty kilos. Thus all excess in the exciting of any of our senses to action ends, on the whole, in lasting exhaustion. Now, calculate, I beg of you, the amount of painting that we see, of music that we hear in the course of a Paris winter, and then judge what a subtraction of strength our modern existence entails on the artistic side alone.

To this should be added :—

Physical fatigue, which jolting carriages and shaking railways are far from relieving.

Intellectual fatigue, more and more heavy to bear, if you count what we have to learn and what we have to understand of things new and various in order to be civilized—not to speak of what each one's calling demands in the way of careful application, intellectual tension.

And the fatigue of our pleasures.

All this makes up more fatigue in one day than our sleep, which is usually curtailed, can repair.

Now this phrase—fatigue insufficiently repaired—is the definition of overwork. Neurasthenia, which is only organized overwork, is initial neurosis, the mother of hereditary degeneracy. Such a filiation is not cheerful to contemplate if we count the immense number of

neurasthenic invalids, and the still more numerous victims of fatigue in our present state of society.

Many resist ; many will resist for a long time. But the evil is spreading with evident rapidity. Is our civilization to march on, as some would have us believe, to final downfall? We have too much mind, so it is asserted that we shall have but a short life. I am myself less of a pessimist, and yet I believe it urgent that we should defend ourselves. The spring of modern society is becoming weak ; we must resolutely seek the means of strengthening it and restoring its elasticity and vigour.

These means may be ranged under three heads : rest ; training ; methodical stimulation of our nerve centres.

2.

The simplest means of all is assuredly the old remedy recommended for ages by the monastic system of Latin Catholicism—it is Rule and Rest—life made monotonous, and activity checked.

How many have I seen whom life has undone, whose bodies have no strength, who have no more will of their own, who are given over to melancholy, weak and irritable, and who come to beg us to restore their powers ! For many of these a frugal monotonous life in a hydropathic establishment, with regular meals, the douche and static electricity, would be an efficacious remedy. The life of such places differs after all but little from that of the convent—the lay convent of course, where the shower-bath takes the place of the Mass, rather meanly but efficiently, and the hair-glove of the hair-shirt.

Strict regularity, monotony, the suppression of everything that enervates and of all contact with those in whose presence our nervous system is off its guard, inaction, the feeling that we are no longer responsible for family and professional charges, deep, almost absolute rest—all this is highly favourable to the slow progressive repair of the infirm will.

Think of it—it was the weak of will, those unfitted for the struggle for existence, the weary ones and those who were beaten by life, who conceived the idea of the convent. An instinct warned them that they would recover courage in the peace of solitude, in the rigour of unbending rule. It may be that the coming age shall see something like this. First, convents in which our successors here below will find temporary refuge while they recruit their strength, quiet their nerves, and renovate their will for the efforts to be demanded in the coming year. Afterwards, permanent associations, evidently lay, perhaps non-religious, but which will borrow from the former cloister severity of rule and monotony of life. When men shall no longer have the strength to do good separately and to fulfil their duty by themselves, they will feel the need of binding themselves to others and obeying blindly. Strange to say, it will be science, which emancipates men, that will lead them back to the practices of days gone by and restore, perhaps in a few years, a mediæval system, with, no doubt, a little more equality, but hardly greater liberty than in the fourteenth century.

3.

Still, I confess I have but little liking for thera-

peutics of this kind which I regard as only a makeshift, a last resource.

Speaking generally, rest is more often harmful than useful. It can only be recommended for those who are very greatly fatigued and have, for the time being, exhausted their nervous strength. Only the weakest, those who are hardest hit, will have recourse to the refuges of which I have spoken. My own conviction is that rest, for every man who has any stamina, ought to be reduced to a minimum adopted once for all, under penalty of his finding that rest will make him less instead of more able for his work, will diminish his fitness instead of increasing it.

A brain of any value ought not to be conquered by but to conquer lassitude, by keeping up its own activity, by cultivating its natural aptitude for action, by "training," as it is called. Excess of intellectual labour is a frequent source of exhaustion; but, for myself, I am of those who do not believe in the preservation of health without work. Just as truly as idleness is the source of all vice, it is also the progenitor of a great many nervous disorders.

In order to deal more precisely with so interesting a subject, I think it well to say that there are many among those who suffer from exhaustion who work very little, and especially there are many who work very badly. Fatigue is really very rare, transient, and accidental in the case of men whose thinking is productive and fertile. On the contrary, it is extremely frequent and almost chronic among those who let life conquer them, among inactive men of meditative but non-productive brain, and even among the

few men of real talent, who work only under what is called inspiration, work by spurts, so to speak, and then indulge in long repose. Big doses of work might be found, upon the whole, less fatiguing than small ones; and rest, which is often a wonderful remedy, might then become absolutely contrary to sound hygiene. We shall presently see how and why this seeming paradox is a very general truth, easily to be explained in a very simple way.

In a study like the present it is always best to begin by accumulating some authentic documents, some ascertained facts, a thousand times more demonstrative than any number of mere views.

No one can doubt the magnificent power of work and the rare perseverance which were needed to complete the voluminous collection of romances by Alexandre Dumas the elder, the *Comédie humaine* of Balzac, Michelet's *Histoire de France* and *Histoire de la Révolution*, the fifty volumes of Victor Hugo's works, or the historical and political writings of Thiers. Let us see how those men, whose genius was so great and so different, did their work, and find out how they dealt with fatigue.

First of all, I will give a letter written to me by Alexandre Dumas the younger, in December, 1892, on his father's method of work and his own. The first part of his letter is entirely concerned with his father, and is all the more valuable that a popular myth represents the elder Dumas as a whimsical person, who worked only at the caprice of his genius, and at night, but passed his days in amusement. Many of his readers have, no doubt, imagined him drinking deep like Athos,

and able to dispense with sleep or rest like all the heroes of his tales. Read what his son says:—

"My father never worked by fits and starts. He began to work so soon as he was awake, and for the most part went on until dinner. Luncheon was only a parenthesis. When he lunched alone, which was rarely the case, a little table ready served was brought into his study, and he ate with excellent appetite whatever was given him. Afterwards, he turned his chair round and took up his pen again. He drank only water diluted with red wine, or white wine with mineral water—no black coffee, no liqueur. He did not smoke. During the day he drank lemonade. Sometimes he worked in the evening, but never far into the night; he slept very well.

"There would be many days and even months of work like this before he felt fatigue. Then he went off to shoot, or on a little trip, and during this he had the faculty of sleeping long and soundly and literally thinking of nothing. On arriving at an interesting city, he went to see all its curiosities and took notes. Change of work was rest to him.

"In the space of several years I have known him to have two or three days of high fever, with his pulse up to 120 or 130, as a consequence of this daily and unceasing toil. He knew what was the matter; he had a big glass of lemonade placed on his table; then he lay down and slept, snoring like a steam engine. He awoke from time to time, drank a little of his lemonade, and went to sleep again. At the end of forty-eight or seventy-two hours, it was all over: he got up, took a bath, and began afresh.

"He was always in good health; he never had complete rest, except while shooting or travelling. I have never seen him take a rest at home. He needed a great deal of sleep. Sometimes during the day he would sleep at will, so to speak, for a quarter of an hour, snoring heavily, and then start his pen again. There were no erasures, and his handwriting was the finest in the world.

"Apart from his work, when he was with his friends at home or in town he had inexhaustible animal spirits, with never a sign of fatigue from the day's work. He worked everywhere; if he were travelling, it would be on the corner of a table in the first inn he came to. For a long time he had a bowel complaint which woke him up during the night, with very sharp pain. When he found he could not go to sleep again, he read; if the pain increased, he walked up and down in his room, and when it became intolerable, he sat down and worked. With him the brain could create a diversion from anything. Work was his panacea for every annoyance and sorrow."

And now the younger Dumas tells us his own experience as an author:—

"My habits of work are quite different. I do proceed by fits and starts, and, as I do not possess imagination, observation, reflection and deduction are everything to me. Accordingly, I remain sometimes for months turning over a subject in my head without taking up my pen. I set to work only when I have decided on everything.

"I need a great deal of physical movement during this period of gestation. I always rise early and work until

noon, especially when I am in the country. I go at my work again for two or three hours during the course of the day. Work takes away my appetite and rather increases my sleep. When I do not work, I sleep less well. Anyhow, work is a great fatigue to me, and I am at times obliged to leave it off completely for a long while.

"I am as abstemious as my father—no wine, no coffee, no liqueurs, and no more tobacco, for I have smoked cigarettes a great deal.

"Lastly, my bringing forth has little pleasure connected with it."

The parallel between the two methods of these two celebrated men is not without interest. Certainly, in public opinion, it was the father who passed for having less method and steadiness. Well, it was he whose work was regulated like a monk's prayers, and, although both were alike admirably constituted in mind and body, the younger Dumas only felt fatigue after literary childbirth. It is worthy of remark that the father, whose work was, numerically, much more copious than that of the son, is the one on whom work never had an injurious action.

The case of Balzac is not less curious. He was not satisfied with wearing a monk's habit when at his work; his was the regulated, laborious, and chaste life of a Benedictine. Théophile Gautier tells us in very pleasant fashion of the advice, which sounded oddly, that was bestowed upon him by the creator of the swarming *Comédie humaine*.

"Giving himself as an example, he preached to us a strange literary hygiene. We ought to cloister ourselves for two or three years, drink water, eat jugged hare like

Protogenes, go to bed at six o'clock in the evening, rise at midnight and work until morning—and, especially, observe the severest chastity—he insisted strongly on the latter precept.

"It must not be thought that Balzac was jesting in laying down a rule for us that Trappists or Carthusians might find severe. He was quite convinced, and spoke with such eloquence that several times we conscientiously tried this method of developing genius." Elsewhere he adds, "Balzac produced much, thanks to a superhuman will, backed by an athlete's constitution and the seclusion of a monk. . . . He was sober and abstemious by habit."

Victor Hugo had the faculty of drinking and eating a great deal with impunity. But like all powerful producers he worked at fixed hours, from the time of his waking until his luncheon. Every morning of his life he rose at seven o'clock, poured a jug-full of cold water over his head, and then began to write, standing up, rapidly and without erasures, the pages of verse or prose which he had thought out in his mind during the course of his afternoon's walk on the day before. If there is a poet whose inspiration cannot be denied, it is he. But he had subjected inspiration to habit, and the tongue of fire had to resign itself to descend on his head every morning from seven o'clock to noon, just as one goes to an office. Truly formidable was the accumulation of copy produced by his unremittingly regular toil.

All great creators have avoided fatigue by this same means of instinctive hygiene—method in labour. The instances I have given are sufficient to prove this, I imagine, and I would cite no others if I had not received

the following instructive letter from the widow of Michelet:—

"Michelet was early in his habits; in his younger days he rose at four o'clock in the morning. In middle life—when I was married to him—he still rose a little before five; toward the end, it was at six. He slept a great deal, with the peaceful and deep slumber of a child. When he was alone he liked to go to bed at nine o'clock, previously reading something that rested and refreshed him after writing history. Nevertheless, it was not under the impression of this reading in some favourite author that he went to sleep. Before putting out his lamp, he looked over his programme, that is to say, the principal facts of the chapter which he was to write the next day. During sleep a latent work was going on, no doubt, in his brain, which, on his waking, was changed into light, and sometimes rectified the ideas of the previous day. Thus he was essentially a man of the daytime.

"He ate very sparingly, avoiding all heavy food. Before he began his work, he took a very small cup of *café au lait* without bread. He called this his 'tug-boat.' At eleven o'clock he breakfasted on two eggs and a cutlet. He took little or no dessert; he drank a little Bordeaux, but never spirits or black coffee—the latter he disliked as much as medicine, while *café au lait* was a treat for him. This intelligent regimen was scarcely varied during the twenty-seven years of our married life. I ought, however, to say that with the vigilance due by every woman to a brain-worker, I fed him with game and vegetables rich in azote when, all his preparations being made, he placed

himself at his desk and wrote, at a stretch, the third or the half of a volume. But when he went back to his researches, which demanded rather calmness of view in order to be lucid, I varied his food with poultry, green vegetables, etc., but, of course, without troubling him on the subject. At the hour of meals we exchanged our impressions and ideas. Feeding was a minor matter—but everything had been carefully arranged.

"Thus his daily sum of labour was about six hours. For Michelet this was the fixed quantity all his life. But after second breakfast (luncheon), there were visits to the libraries—the six or seven hours passed at the Archives during the twenty years when he was head of the historic section. He came home at four, put the result of his researches in order, and prepared the morrow's work.

"In spite of his delicate constitution, his health was very even. It was strengthened by work. When, all his preparations being made and his way cleared, he had given the "*coup de piston*," he went along as though on rails, by the force of the impulse which he had himself supplied. He allowed no diversion, few or no visits, nothing foreign to the work of production. It was necessary to watch over the interludes. When he had finished a book, he felt the fatigue of continuous work and experienced the physical depression that succeeds prolonged effort. For a moment the spring of the will itself seemed broken. Luckily, the country and natural history came to our help.

"But the country postman knocks and I must stop—you have what is essential.

"S. J. MICHELET."

I think a conclusion may be drawn from all this.

The example of those great producers, whose habits we have learned and to whom work seems to have been as necessary as the functions of alimentation or respiration, justifies the idea that the human machine gains nothing from repose but rust, and, on the contrary, is kept up by action, by work. It is certain that all these men of great brain were able to work enormously, and almost without interruption, during long years. Their health does not seem to have been injured by it. Dumas the elder died at sixty-seven, Michelet at seventy-four, Thiers at eighty, Hugo at eighty-two, Alexandre Dumas *fils* at seventy-one. Only Balzac died young. Yet it is he who was most active in instituting and preaching a rule of health for literary men; but he observed it badly, forced as he was to long spells of labour and in perpetual money troubles. Several times it happened that he worked for two or three months together at the rate of sixteen hours out of the twenty-four. It is not wonderful that he could not hold out long, in spite of his Herculean physical organization.

Generally heavy sleepers, hearty eaters, but radically temperate, these powerful writers had wonderful health while working tremendously; and they felt fatigue only when they thought proper to rest. Besides, they quickly regained energy. We find, in the case of all, that they seldom wished for the interruption of their toil. *Nulla dies sine linea*—the inscription above the mantelpiece of Zola's study at Médan—prescribes. This was also the motto of Hugo, who, during his whole life, suspended his work only for a month or two in the course of a slight attack of mental confusion which was like a suspen-

sion of the activity of that prodigious and indefatigable brain.

This principle of the necessity of continuous work was so well understood by Madame George Sand that (if we are to believe Théophile Gautier as reported by the *Journal des Goncourt*) when she finished a romance at eleven o'clock in the evening, she at once began another, taking only the time to light a cigarette and to transcribe the title, in order not to lose the rest of the night. The hour of sleep being not yet come, she could not have slept. And it made her uneasy if she allowed herself to read or talk during the hours which she was accustomed to devote to writing.

In fact, two hygienic conditions appear to be indispensable to the realization of these big programmes of work: work must be done every day, without interruption, and every day at the same hour—otherwise fatigue supervenes.

A priori, who can say that Musset, Baudelaire, or Flaubert were not as well qualified to resist fatigue as George Sand or Balzac? Their work is eminent in merit, however diverse in kind—but how limited it is, and how far from producing the almost superhuman impression of those great creative geniuses! Now Musset, Baudelaire, and Flaubert worked with as little method as was well possible. In the letter already cited, the younger Dumas says that he, too, worked erratically, and that he suffered from fatigue. But his case is perhaps too special; it is difficult to compare the construction of a work for the theatre with the accomplishment of long romances or of history, which require so many more pages and far greater assiduity.

Elementary physiology can explain this necessity of a rule for work in the simplest manner imaginable.

With respect to its performance of its functions, our brain may absolutely be compared to any other of our organs—to the stomach, for example. If we accustom ourselves to breakfasting every day at noon, every day at noon the stomach will become congested and secrete gastric juice, without any intervention of our will. If, for once, we give it nothing to eat, it will suffer and cry famine; if for a long time together we disturb its habits, and the hours of our meals become irregular, the stomach gets out of order and contracts disease; its walls become worn, and its glands exhausted.

It is just the same with our brain; it is weakened by irregular work. But even as the heart does not weary of beating through the whole course of a long life, or the stomach of digesting, if only we regulate its meals, so our brain can work on indefinitely, without weariness, if only we regulate its toil.

The one thing which requires an expenditure of force, of energy, is the setting in motion. This alone is painful. The wise simply arrange so as to be always in motion. If you form the habit of working every morning from the time you awake until eight o'clock, your brain will be congested of itself, a call on the circulation will be made in it, and the organ will hold itself ready to work, to produce thought, without requiring any voluntary and fatiguing effort to compel it. It becomes a *reflex* phenomenon, and reflexes do not become fatigued. It is, on the contrary, the ceasing of activity that fatigues.

If you do not work regularly and without interruption,

you are constantly obliged to renew the setting in motion, to compel your brain to become attentive, to constrain your intellect to a given task by command, and this the most gifted find very fatiguing. A good habit is quite as imperious as a bad one and equally difficult to break off. The great thing is to have strength of will to form the good habit.[1]

Once it is formed, no further intervention will be required. You work without difficulty, as though needs must, and literally you come to being unable to do without this daily bread.

4.

That which is true with respect to mental labour is equally true with respect to physical or muscular toil, which is regulated by the same natural modes of being. Whether it be handling the spade, or lifting weights, pleading causes, or writing books, the mechanism does not vary. It is never anything else than the working of different points of our grey cortex; and the laws of cerebral mechanics are one and the same for everything done by the brain: now, it is the brain which commands the movements of our legs and arms, as well as the utterance of speech.

I had occasion, at the time of a memorable race, to examine two professional bicyclists, Terront and Corre, and the result of my investigation, a result which I have since corroborated by many other observations of the

[1] For more ample details see the following chapter: Indolence and its Treatment.

same kind,[1] are of sufficiently general import to be retained.

For a distance of one thousand kilometers during forty-two consecutive hours, these two men, whose appearance indicated only ordinary strength, kept the muscles of their legs in ceaseless action. Statisticians reckon at about 250,000 the number of pedal strokes given by each of the two champions!

Of the two competitors, Terront, who won the race, had had the most thorough training. Corre, who had been a professional cyclist for a much shorter period, had undergone a methodical treatment by massage during the month preceding the trial; this, as he said, made the muscles of the leg both hard and supple. He had been less well advised than his rival, and much less carefully looked after, especially with regard to his food; but nevertheless, he endured the fatigue with astounding courage. At the moment when I examined him, shortly after he got off his wheel, he literally presented no appreciable marks of fatigue. He was neither lame nor stiff, he complained slightly of some inconvenience felt across the knees and in the tendon Achilles, but he spoke volubly, with a strong voice, and showed no symptom of that half-dazed stupefaction which indicates exhaustion.

His grasp of the dynamometer gave:—With the right hand, 43 kilogrammes; with the left hand, 42 kilograms.

The bending of his leg on the dynamometer brought a weight of 36 kilograms.

[1] See the special memoirs of Dr. Ph. Tissié (of Bordeaux), Léon Petit (Paris), Gauthrelet, &c.

His arterial tension was above the normal, at 19 centimetres of mercury. The reflex of the patella was quite normal, whereas it is usually exaggerated in persons really worn out. We must then conclude that Corre was not at all fatigued the day after his race; on the day itself he was, but—and this is worth remarking—it was not his muscles that betrayed him, it was his brain. After leaving the race-track he wandered greatly in his talk, and also during his sleep in the night. He described this in a curious way. "It seemed to me," he said, "that I had a double; another man said incoherent words with my mouth; I very soon perceived it, but I began to ramble, in spite of myself, a few moments after." The next day this had ceased; the man had lost some flesh; his muscular groups were not so hard as before the match; but he experienced no feeling of weariness, and, except for a cold which he had caught during the race, he was in perfect health.

Terront, whom I saw some hours later, seemed to me still more alert and hearty than his rival. I measured the state of the winner's strength as I had done that of the other: the figures do not differ greatly.

They are a trifle weaker for Terront, who is a few years older than Corre.

At the dynamometer: with the right hand, 42 kilogrammes; with the left hand, 36 kilograms; flexion of the leg, 29 kilograms.

The arterial pressure was 18 centimetres of mercury (a little above the normal); the reflexes of the patella tendons were weakened. The temperature was normal; Terront had not lost an ounce. That very evening he

resumed his ordinary daily life; but he had so trained himself to a short allowance of slumber that he could sleep only four out of the twenty-four hours.

Here were two men whose health was in no wise injured, at least not appreciably, by their extraordinary feat. Terront showed no trace of stiffness—except in the right knee, which had once been dislocated—I believe it is easy to explain how and why.

The race was along a track and on flat ground, with no hills to climb. . At no moment of the race had extraordinary effort to be made. During the forty-two hours the legs pressed the pedals with a continuous movement, without the will having to intervene; and the 250,000 foot-strokes which statisticians attribute to each of the champions were produced automatically, like the swimming movements of the frogs that Flourens had deprived of their brain. Muscle and the spinal cord only were engaged, and so the fatigue was next to nothing. This is a new and conclusive proof in favour of the doctrine which makes fatigue a psychical phenomenon, a malady of the mind, exhaustion of the will.

Twelve years ago, my master Pitres and myself made proof of this curious and instructive physiological truth, in the person of one of our patients, who had reflex trepidation of the foot; we had registered 10,000 double oscillations in the hour and verified the fact that this phenomenon, which was absolutely withdrawn from the influence of the brain, might continue indefinitely without producing any symptom of fatigue.

The experience of Corre and Terront is perhaps still more conclusive. With the exception of the start and the

changes of pace, the legs of these two heroes of muscle worked as unconsciously and impersonally as the connecting-rods of locomotives. A single condition seems indispensable to the accomplishment of such feats; it is the presence of a trainer pedalling ahead whose legs dictate the rhythm to your own. "The trainer is an indispensable leader of the band," says Terront, who is quick at picturesque comparisons. "When I am alone on the road," he adds, "I try to recall a military marching air, and sing it mentally to give the time to my pedal strokes. On the track a little music from time to time would have done us a great deal of good, and the race would have been finished one or two hours sooner if we had had such refreshment."

Terront had not flagged for a moment, nor been discouraged. Corre, who was less trained, grew very sick of the last six hours; he said they "seemed longer than so many months." But one of his trainers, who accompanied him "on a machine," fortunately thought of telling him stories, and the sound of his voice put fresh heart into Corre.

We deduce from this that in the phenomenon of fatigue two principal elements are concerned: brain which commands and muscle which obeys. The muscle can work on almost indefinitely; it is the effort of the will that becomes exhausted, through overwork of the cells of the cerebral cortex. With trained wheelmen, the pedal stroke is no longer a will movement but a reflex which the spinal cord suffices to direct and co-ordinate. This is so true that training may be defined as *the acquiring of a habit which consists in substituting by degrees the*

spinal cord for the brain, the reflex for the voluntary movement. Terront assured me that "there would really be no reason for stopping but the impossibility of indefinitely doing without sleep." Corre thinks that "if one had legs capable of going round the Galerie des Machines in thirty-five seconds, one could obtain that extreme speed as easily after forty-two hours as after forty-two minutes on the track."

The conclusion is, then, that here in the matter of muscular contractions training is everything: it consists in substituting for action of the will, which is subject to fatigue, reflex action, which can be continued almost indefinitely. Hence it is proved that man, owing to the precise scientific notions of methodical training which we are beginning to possess, may considerably set back the limits of his fatigue and arrive at an unhoped-for utilization of himself. These laws of methodical training were laid down and supported by remarkable proofs in the works of an eminent specialist, Dr. Fernand Lagrange, whose doctrines were taken up afterwards by Mosso and partly completed.[1]

A simple and very important idea is brought out in that work, to which we shall recur farther on; the toil of training constitutes a positive increase to the organism of available strength, whenever it is moderate; beyond a certain limit it leads to exhaustion.

And we may add another idea which is in my opinion

[1] Fernand Lagrange, *Physiologie des exercices du corps*, *L'hygiène de l'exercice chez les enfants et chez les adultes. La médication par l'exercice* (published by Alcan). Mosso, *L'éducation physique de la jeunesse* (Alcan).

of great importance—it is that cerebral fatigue is al one thing: it used to be the fashion to seek rest after intellectual work in physical exertion, a gross error which is being corrected daily. Undoubtedly, a man who works hard with his mind feels better for a few moments of physical exercise; remaining fixed in one's chair at a desk is not a healthful practice. But physical exercise is advantageous only if it be moderate; otherwise it will simply add to the fatigue of the zones of the brain which preside over writing, and the exhaustion of those which command the movements of the muscles; thus producing double fatigue.

5.

Marvellous and wonder-working method as it is, it must be acknowledged that training is not always and in all cases applicable. It happens that even very moderate physical exercise can but exhaust. It develops energy already existing, or sometimes eliminates an excess of force which we did not suspect, but where there is nothing or next to nothing, training is out of place. The really exhausted require tonics and temporary rest.

I will add at once that—like almost the whole present generation of hygienists—I have a great dislike to chemical tonics, what are called 'building-up' drugs. No doubt caffeine, preparations of kola, the much-praised glycerophosphates, certain fatty foods, and even alcohols, may accidentally be of real service in the cure of exhaustion of the nervous system. But they have their disadvantages: they risk injury to the stomach and the digestive functions. Besides, they are apt to become a habit which

the patient cannot lay aside. It is then evident that the better way is to resort to the natural sources of human energy.

Brown-Séquard was, I believe, the first to apply himself to doing this. It is not necessary to relate here the history of his experiments in hypodermic injections; it is sufficient to note that oportherapy took its place in modern therapeutics and was raised by the official teaching of the Faculty to almost the same rank as the admirable serotherapy which has resulted from the doctrines of Pasteur and the discoveries of Roux and Behring in toxicology.

M. Constantin Paul—an eminent physician—had a momentary vogue, owing to his idea of injecting *nerve substance* into neurasthenic patients and those who are disheartened. Although, to my own knowledge, he obtained undeniable results, yet he too, like Brown-Séquard, produced an uneasy impression on the scientific world. It was felt that we were near a great truth, but aside, or on the edge, so to speak, of the final discovery.

6.

It was reserved to Dr. Jules Chéron, physician at Saint-Lazare, to complete this discovery. His paper, read on June 27th, 1893, before the Academy of Medicine,—followed immediately by the publication of his work, *Introduction à l'étude des lois générales de l'hypodermie*,[1]—was at once hailed as the clear and luminous revelation which was awaited. This book bears as epigraph an apparently paradoxical sentence:—*All hypodermic injections produce*

[1] *Société d'éditions scientifiques, Paris.*

identical effects, whatever may be the liquid introduced beneath the skin, provided that this liquid be not poisonous. The difference bears only upon the greater or less intensity of the phenomenon produced.

Thus, then, all liquids, provided they are not poisonous, produce identical effects when injected beneath the skin, and none of the camphor and guiacol oils, glycero-phosphates, serum of dog's, goat's, or rabbit's[1] blood produce any other effects than those to be expected from the simple subcutaneous transfusion of a little salt water. Pure water has the property of dissolving and destroying the red globules of the blood.

Dr. Chéron has demonstrated this assertion by a number of exact statements. He has shown that the effect of an injection of serum was not at all imaginary; that there really and truly resulted from it a general increase of vitality, a rise of the tension of the blood in the arteries and in the strength of the impetus of the heart, an increase in the force of dynamometric pressure, an acceleration of nutrition, respiratory interchanges, &c., &c.; and on the other hand, he has very simply but superabundantly proved that the liquids enumerated above act in no other fashion. The artificial serum—its formula is variable at will[2]—has no other merit than that it nearly approaches

[1] Serums rendered harmless by the methods of Pasteur are, of course, excepted, as they have a real specific action on this or that microbe or on the poisons which have issued from it.

[2] The following is the primitive formula of the Chéron serum :—

Sulphate of soda	8	grammes.
Phosphate of soda	4	„
Chloride of sodium	2	„
Phenic acid neigeux	1	„
Sterilized water	100	„

This constitutes a very dense and consequently very stimulating

the chemical constitution of the normal serum; it is therefore, not a substance endowed with special virtues, but only the simplest liquid—that which it appears particularly logical to introduce into a living organism.

The action of these hypodermic injections is properly the neutralization of fatigue, contention against exhaustion of the nervous system. Dr. Chéron, feeling the need of being all the more scientific and exact that his predecessors had contented themselves with establishing the disappearance of fatigue and the rise of a certain sense of well-being and strength under the influence of their injections, then proceeded to group together all the means now existing for measuring the condition of a subject suffering from fatigue, and his condition after the transfusion of serum.

He established the following facts:—

A man under fatigue grasps the dynamometer with only moderate vigour; his heart contracts languidly; the pressure of the blood in his arteries is low; but few red globules appear in the field of the microscope; his respiratory capacity is small; his respiratory interchanges are insufficient and urea is rare in his excreta; his red blood is slow of changing into black blood, that is, to utilize itself so as to make chemical changes in the tissues. A very ingenious apparatus, invented by Dr. Albert Henocque, enables us to establish this fact.

liquid. The following formula, slightly mitigated, is used more frequently:—

Sulphate of soda	1 gramme.
Phosphate of soda	
Chloride of soda...	
Phenic acid	
Sterilized water	100 grammes.

Finally, the *threshold of sensibility* is augmented, which means that the points of the compass applied to the skin of the forehead, for example, are perceived distinct the one from the other only at a distance sensibly greater than the normal—a fatigued man feels less and lives less in every way.

Under the influence of a series of transfusions of serum, all this is changed and the whole vitality increases. Often a single tranfusion is sufficient, if it is opportune and given in proper quantity, to lead to the following series of effects for some hours. A few figures, representing the mean, will help to make me understood:—

MEASURES TAKEN.	STATE OF FATIGUE.	AFTER INJECTION.
Arterial pressure	10 cm. hg.	15 to 17 cm.
Dynamometric force :		
Right hand	30 kg.	36 kg.
Left hand	26 kg.	31 kg.
Number of red globules ...	2,914,000	4,154,000
Excreta-urea in twenty-four hours	24 gr.	32 gr.
Activity of reduction of red blood to black blood ...	0·60	0·95
Threshold of sensibility ...	9 cm.	4 cm.
Respiratory capacity ...	2 litres ·50	3·75

Add to all this a revival of appetite almost amounting to voracity; the pleasant sensation of lightness of body and ease of movement; great need of activity; unusual power of intellectual work; a certainty of memory unusual with neurasthenic patients; and a generally speedy return to the pleasure of living.

The accompanying diagram shows clearly the oscillations of the arterial pressure and its curve during the hours which follow the injection.[1] The example represents the

[1] The measure of the pressure of blood in the arteries, by means of the spring sphygmometer of Verdin and Chéron, is certainly the simplest and most practical manner of obtaining information concerning the state of nervous excitation or fatigue of a subject.

observations made on a young woman, an anæmic neurasthenic, working by the day and in my service, so that it was possible for me to follow the modifications of arterial pressure in her case, hour by hour, and even every quarter of an hour. The habitual tension was exceedingly low, from nine to ten centimetres of mercury.

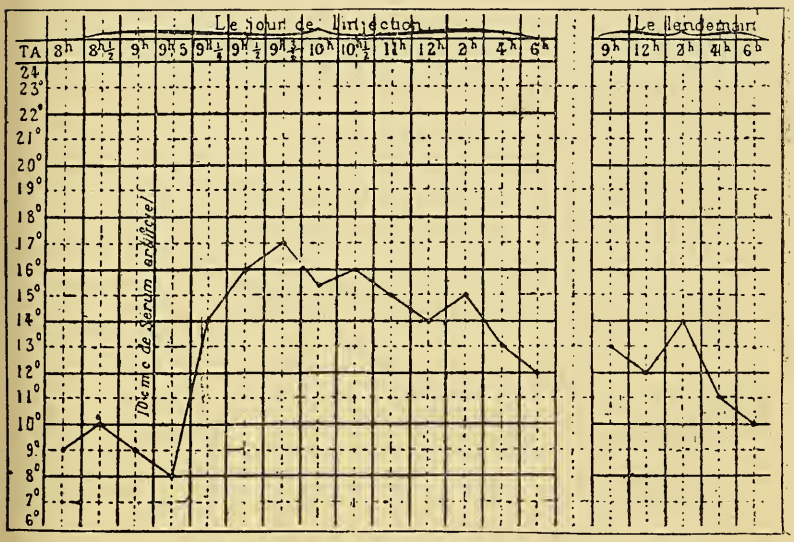

FIGURE 9.

The injection made at nine o'clock produced at first (this phenomenon was not constant) a considerable lowering of the blood pressure, with a slight feeling of prostration or over-fatigue. This fall, marked on the diagram at 9·5, did not last more than seven or eight minutes. At half-past nine the rise was plain; it reached its maximum

three-quarters of an hour after the injection. The evening of the next day the tension fell back for the first time to its habitual level.

Psychasthenia, the feeling of exhaustion, the shyness, the sadness of this young girl, seemed to be modified on almost a parallel with the oscillations of the blood pressure: she slept better that night than usual.

Such is the effect of hypodermic injections judiciously employed. It is well to know that when the dose is insufficient they do not act; with an exaggerated dose, they produce therapeutic over-fatigue. We have seen that physical exercise, when carried too far, ceases to be tonic and becomes depressing. The laws which govern the adding of force to the organism are parallel with those which govern the expenditure of force. M. Charles Féré had already shown very clearly that excitement in moderation is tonic, but all excessive excitement is depressing. Thus the problem of nervous exhaustion appears more and more like a problem of cerebral mechanics.

I remember the time, not very long ago, when our investigations, each day having its discovery, were being carried on in the modest little laboratory of Saint Lazare, where all these new ideas were brought to light and verified. Such moments count among the best of my scientific career. There the idea of this work was conceived; there the variations of arterial pressure in the different affective states were observed for the first time by M. G. Dumas, following the directions of Chéron; there we ascertained what psychical modifications it is possible to induce experimentally by transfusions of serum, or by other like mechanical stimulants of our nerve centres.

7.

The establishing of the fact that all liquids injected beneath the skin act in the same way involves as a consequence the adoption of the idea that their action is not chemical, but solely mechanical. In fact, stimulation

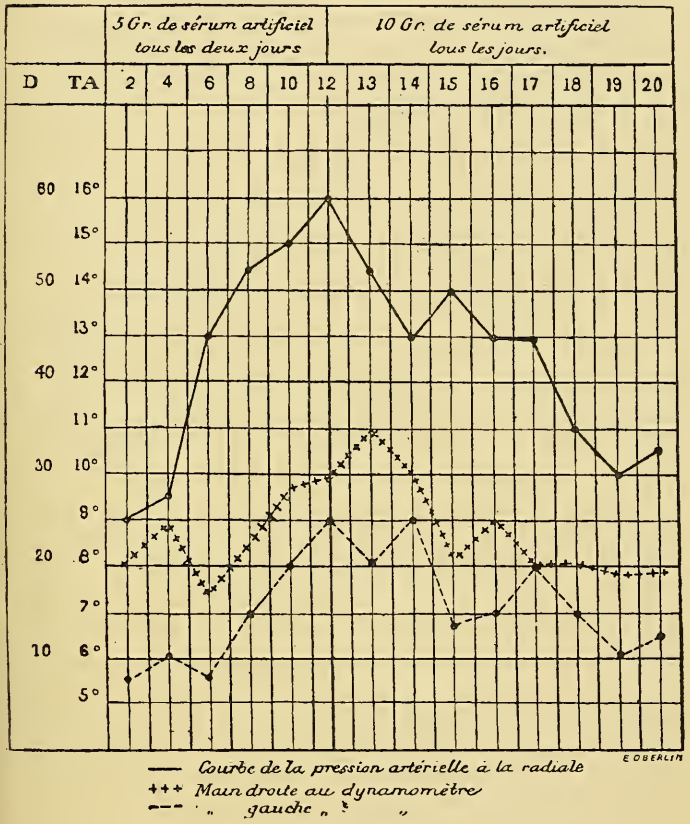

FIGURE 10.

by hypodermic transfusions is all the keener by so much as the injected liquid is denser and more irritating, no matter what may be the elements which enter into its composition.

In this way M. Chéron soon came to the conclusion that the injection of serum acts by a process of stimulation analogous to that which is produced by friction with a hair glove, by the douche or massage. This comparison was surprising at a first view; indeed, it seemed only to put back the question and not to solve it, since we are totally ignorant of the mode of action of dry friction. We only know that, for the time being, it procures a keen sense of relief and vigour, a heightening of tonicity. The idea then occurred to us to study the conditions of production of the normal tonus.

So long as we are at rest, but without sleeping, our muscles remain in a state of half-tension, which is intermediate between the complete flaccidity of sleep and the strong contractions of movement. This waking state of the muscles, which enables us to keep standing, is called the tonus.

Brondgeest, by an old experiment, not yet utilized, has thrown a light on the nature of this phenomenon for us. We know [1] that our muscles are connected with the spinal marrow by a mixed nerve that is at once sensitive and motor, centripetal and centrifugal, a nerve which unfolds when near the spinal cord and divides into two roots: the posterior root, which is furnished with a ganglionary swelling, is the terminus of the sensitive or centripetal fibres; the anterior root is the starting-point of the fibres

[1] See preceding chapter.

which command the muscle to contract itself, to make a movement.

The figure which we give will readily explain Brondgeest's experiment.

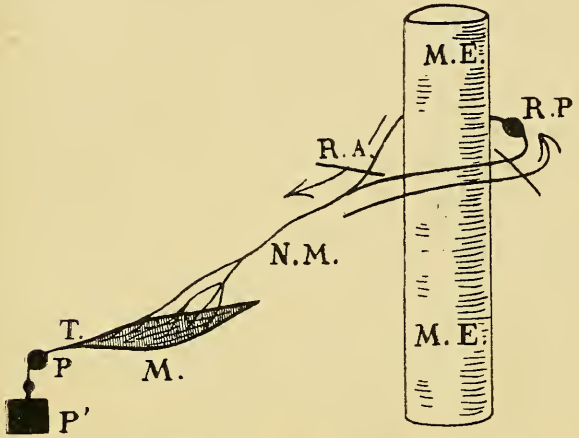

FIGURE 11.—M.E., spinal cord. M., muscle. T., tendon. N.M., mixed nerve. R.A., anterior nerve, motor and centrifugal. R.P., posterior nerve root, sensitive and centripetal. P., pulley. P'., weight.

A weight is attached to tendon T of muscle M. This muscle, detached from the body, is, however, kept attached to the spinal cord by its mixed nerve, N.M., and is consequently in the state of tonus, half-contraction, or waking. On the motor root R.A., being cut close to the cord, the muscle ceases to receive the nervous influx, and shrivels, while the weight P' falls several millimeters. So far all is simple. But there is something more curious and important. If, instead of cutting the anterior root, you leave it intact and, on the contrary, cut the posterior

root R.P.—in other words, if you suppress the afflux of the centripetal nerve vibration to this region of the spinal cord—the muscle shrivels and the weight falls in like manner.

This proves, as all the treatises on physiology tell us, that tonus is a reflux; here they stop. But we can go farther. It proves that tonus, or, if you like, the force of our muscles, is perpetually kept up within us by sensations, whether we are conscious of them or not, by continuous and uninterrupted stimulation from the outer world, finding its inner way along our sensitive nerves, by which they bring us not only knowledge, but also force.

Faithful to the principle that we must consider the lofty questions of psychology as so many problems of mechanics —the first idea of this comes from Spinoza—we are thus convinced by experience of the capital truth that human energy is only a variant of the universal energy, which is, by turns, electric current, heat, light, sound—wave, or nerve—vibration. The human mind—or, at least that part of the body in which it is incarnate, the brain—is simply a machine. Like every machine, the brain receives, transforms, restores; fuel is furnished to it, and from fuel it makes motor power. But the fuel which feeds our nerve centres is named sensation, and the force which it gives back is intellectual activity (words, writing, or gesture). Feeling, and then movement of the human machine mean just this.

Force is maintained by every centripetal stimulation communicated to us by the world, by the luminous and auditory vibrations that reach us from every quarter, by our innumerable tactile sensations (a great number of

these remain subconscious), by thermic and hygrometric phenomena, and especially by the electric phenomena of the ambient atmosphere—phenomena which pass unperceived by the well-balanced man, but to which the neuropath, whose brain is a sort of multiplying apparatus, is keenly alive. This perpetual stimulation touches our sense peripheries, the nerve terminations of the skin, of the digestive mucous membrane, of the pulmonary and bronchial surface, the aponeuroses, joints, tendons, and muscles. Its action is only one of the modes of the transformation of forces. On penetrating within us, their vibrations are changed into nerve vibrations; and it is those very vibrations which constitute our tonus, our individual vigour.

The brain cell nourishes itself from this and draws life from it. The recent and very important researches of an eminent anatomist, M. Marinesco, show that the brain cell is composed of two distinct zones: the one, *kinetoplasma*, commands contraction, movement; the other, *trophoplasma*, presides over the intensity of nutrition. Sensation is, therefore, doubly the mother of our strength —it is our vitality.

Thus Dr. Chéron and myself (mine was a modest share) were led to discover the secret of our energies, the real sources of human strength. We now know where they are to be found and how to draw on them. Wherever we find a network of sensitive nerves, it will suffice to irritate it mechanically and methodically, that is, moderately and progressively, to obtain a heightening of tonus, an increase of vitality, an amelioration of nutrition —that is to say, the cessation of fatigue which is itself

only a malady of the tonus. In the *Revue de Médecine* I have devoted an entire article to a study of the nature of fatigue. The close analysis of its causes, of its symptoms, and of the remedies that may be applied to it, all lead me to adopt a mechanical theory of fatigue and neurasthenia—a theory which ought to take the name of Jules Chéron.

8.

The sum of these researches enables us to understand the mode of action of a great number of therapeutic measures which are frequently used and undoubtedly efficacious, but which are used blindly, in complete ignorance of their mode of action : I speak of the douche, of baths at different temperatures, of the spark from the static electrical machine, of friction with the hair glove, of massage, vibration, the height cure, and the cure by the air or the sun.

I have always heard it said that massage improves the state of the muscles by producing a better circulation of the blood, and that the air cure acts only in virtue of the unknown but marvellous chemical properties of the ozone of heights.

It is now distinctly proved that massage acts by reflex action, irritates the ends of our sensitive nerves and induces a rise of the tonus which the section of the sensitive nerve destroys. Cause a depressed patient to inhale bracing, ozonified air, or the nitrous vapours emanating from the battery, or fluorhydric vapours, for instance. and you will invariably obtain a more florid complexion, a sense of well-being and strength, a renewal of appetite,

a heightening of the arterial tension, and an increase in the quantity of urea emitted during the twenty-four hours. It is no matter what the irritating gas may be, provided there is irritation—of moderate intensity—of the nerves of the respiratory mucous membrane.

Everywhere we find examples of this awakening of vitality by the mechanical stimulation of one of our sensitive surfaces. Almost all neurasthenic subjects are particularly weak, downcast, and irritable at the final moment of digestion. If they will eat a few mouthfuls of bread their mental equilibrium will be restored at once; their spirits will revive on the spot. They have not had the time materially necessary for the assimilation of elements whose chemical utilization will not be realized until several hours later. It is enough that the alimentary bolus shall simply rub the walls of the œsophagus and stomach to produce the reflex of general tonicity. Thus the ostrich, in default of food, cheats its hunger and regains a certain vigour by the mere ingestion of pebbles which it cannot assimilate.

Saline injections and transfusions of serum act only as a clean, slightly irritating foreign body, which, when introduced into the stream of circulation, rubs more strongly than the diluted blood of the depressed patient could do against the sensitive nerve tufts, whose existence in the walls of our arteries and veins has now been proved.

And to each of our sense peripheries there corresponds a process of mechanical therapeutics now perfectly intelligible.

The methodical stimulation of the sensitive nerves of our

muscles, tendons, and joints is called massage; hydropathy, friction, and the static electric spark act on the nerves of our outer integument. Diet, bitters, saline purgatives act on the digestive mucous membrane; the air cure, inhalations of oxygen and other irritating vapours on the surface of the bronchiæ and the pulmonary alveoles; hypodermic injections on the coats of our vessels. And in every case it is a mechanical vibration which follows a sensitive nerve, is propagated by degrees so far as the nerve centres, and there induces an increase of tonicity and an acceleration of nutrition, in order to communicate force to them.

Has not experience proved that the most advanced races, the men whose minds feed most eagerly on art and science, are those who can best endure fatigue and resist infectious diseases? Take a negro wrestler and the most delicate of the great ladies of Paris, and let both be exposed to the same contagion: it is the negro on whom the bacillus of tuberculosis or the cholera comma will multiply. An epidemic of small-pox has decimated whole tribes of Red Indians while it scarcely touched their white neighbours; and it should be remarked that these were nomadic Indians who were certainly not without open air and muscular exercise. A savage is always less vigorous than a civilized man of the same weight, a peasant than a dweller in a city, and an illiterate man than an artist, because the civilized man, the city man, and the artist are filled with sensations which over-fatigue them sometimes, but which habitually raise the pitch of their vitality.

When the French steamer, *La Ville de Saint-Nazaire*, was shipwrecked, it was a striking fact that, during the

interminable hours of suffering in the boats, it was the simple souls who first lost strength and reason. The negroes and the rude uncultivated sailors died first, or went mad, while the leaders, more intelligent and instructed, kept up hope and vital energy until the end.

Professor Raymond, the distinguished successor of Charcot in the clinical chair of diseases of the nervous system, has published the absolutely demonstrative case of a poor deaf man, whose sense of smell was weak, his touch not delicate, and his field of vision very limited. It was sufficient to close his eyelids, to suppress visual sensations, the only tie attaching him to the outer world, in order to blow out his mind—so to speak—he slept immediately.[1] So soon as he no longer saw, the brain mechanism, which was no longer fed with any combustible, stopped, and the man lost activity until another sensation —that of hunger—came to disturb him.[2]

Victor Hugo affords one of the most wonderful examples of natural energy exerted to the full. During his long life he lost many near and dear relatives, and yet how rarely was his will conquered, and how few were the tears he shed for himself alone. But his sensations were none the less vehement; on the contrary, his sensitive nerves conveyed avalanches of that centripetal nervous vibration which is sensibility. Only, instead of allowing himself to be over-fatigued and tortured by

[1] See *Revue de Médecine*, 10th May and 10th July, 1895—memoirs of Dr. Rolland on the "Suppression of sensations and its effects on psychical activity."

[2] It is only just to acknowledge that the last chapter of the *Lois générales de l'hypodermie* of Dr. J. Chéron first gave a general view of the sources of human strength.

these invading forces, instead of keeping them and encouraging them, he gave them back in the form of work. This was so during his whole life, and this made him great.

Fate struck him two cruel blows: the first was the death of his son by drowning, at Villequier; the second was the Coup d'Etat of the second of December, a gross outrage on liberty which was so dear to him. To these terrible events we owe two supremely powerful works, one the outcry of grief, the other the stormy utterance of wrath—that second volume of the *Contemplations* which will make generations of tender hearts weep, and the terrible *Châtiments*, whereby so many simple souls have been inspired with his own desire for vengeance, having caught fire from his burning poetry.

Hugo was not wanting in either sensibility or sincerity. He was simply a man whose literary vocation was entire; it engrossed the whole man; every impression that came to him was changed on the spot into literary production. It was necessary that his sensibility should be constantly awake to produce the requisite strength for such abundant work; and it was necessary that the impression should be of more than ordinary quality in order that the things felt might come forth from his brain with such force. The tempest in *Les Travailleurs de la Mer* and the snow at sea in *L'Homme qui rit* are well nigh as beautiful as the tempest and the snow which come from the hands of God.

What practical conclusions may be drawn from all this? Since sensation is our fuel, since it gives us strength, and that without it there is only sleep or the inertia of the

mind, let us cultivate our sensibility, but let us cherish it especially as the generator of energies.

When the engine has full steam on, if we do not use it, it waters, foams, smokes noisily at every valve; a little more and it would explode. This is an image of our emotions, nervous fits, cries, tears, anger—of the wasted strength and vain wear and tear of our poor human machine. Those who feel most keenly could be the strongest if they would. Energy encumbers them and they know it not. If you lose a dear one, strive to do your best work. You will never be better, your brain will never have more power. What you shall draw out of it will lighten the load of your sorrow.

If, however, your over-worked organism has really become incapable of action, if your paralyzed will draws back, if neurasthenia has hold of you, still have recourse to the sources of strength, to those mechanical stimulations which we have enumerated and whose beneficent effects we have endeavoured to describe. Under their influence you will discern in yourself, together with an increase of life, a certain modification of the mind, and once more you will experience enjoyment of life, courage, and calm, the need of action and the love of work.

The first portion of my task ends here. A new horizon opens before us. We are now on the threshold of morals.

THE SECOND PART.

A MEDICAL SYSTEM OF MORALS.

CHAPTER VI.

INDOLENCE AND ITS TREATMENT.

Conditions of a Medical System of Morals—Can the indolent be cured?—Some examples: Alfieri, Jean-Jacques, Goethe, Darwin, Balzac, Zola—How indolence is treated: hygiene of the body—Psychological hygiene: utilization of the fixed idea—Habit—The conditions of work: method of working; necessity of accomplishment.

I.

The weak-minded class called idlers has always seemed to me infinitely deserving of interest, no doubt because I have often been tormented by the dread of belonging to it.

But, apart from one's self, are not the careless, the loiterers, the lukewarm, the wastrels, in all the professions manual or liberal, only too numerous? Every day, everywhere, we find men of quick intellect and individual charm who have promised well, who have aroused high hopes, stopping short all at once after a limp fashion, unable to utilize their faculties fully, having failed to realize their idea.

Concerning such people, even the most indifferent to

the misfortunes of others will say a "'tis pity," in the guise of a funeral oration, before they consign them to the oblivion of 'failures.' And then we ask, when we see one of these struggling and drowning: could he not have saved himself? or might not a firm friend, a master, have guided him even to the end? How can a man so gifted make such an ending, and will no one invent a remedy for the exhaustion of moral strength, a health system for that form of fatigue called indolence, an antidote to impotence of action?

The solution of this question of general interest I shall now attempt to indicate, endeavouring to forecast the moral system that the philosopher-doctors of the coming century will inevitably institute to meet the requirements of their time.

It is reasonable to believe, in fact, that specialists of the nervous system, not content with having brought a modern psychology to light, will one day minister to the maladies of the mind which they have described and classified. Just as an ordinary doctor practises the treatment of diseases of the heart or the lungs, they will practise the treatment of another organ which seems to be —was not this the opinion of Thomas Aquinas?—the point at which the physical and the moral meet.

Those specialists, as I believe, will teach men to love without too much suffering and to labour without too much faltering. A great step will be made if they succeed in this.

It is easy to foresee that their method will not be limited to enumerating, with more or less eloquence, salutary precepts and sage maxims. Very modest in its aims,

and having pre-defined its sphere, still less will it linger over metaphysical quarrels and dispute about finalities. "Little, but good," will be its motto. It will cheerfully resign itself to the commonplace, purposing to remain practical, to indicate the remedy and minutely to prescribe the manner of its use.

This is the morality of the 'here-below,' the small 'morale' alongside of the great. It will not be talkative. Doubtless, it will write books for the purpose of transmitting the narrative of its most recent conquests to future specialists, and making a clear statement of the information it shall have acquired. But above all, its practice will be clinical; it will address itself to a given ill, it will treat individually—we are occupied with the 'ill' of idleness at present—the intelligent man who is wasting himself and scattering himself abroad, so as to constrain him to make a fasces of his forces and to direct them by a continuous effort towards a fixed aim.

The medical system of morals will then be individual, and the indispensable condition for its realization will be the consent of the sick man to the doctor's care.

In his childhood, his father or his schoolmaster might easily form him, and it is their business to go the right way about it. But in his manhood, if slothfulness in his work besets him, he will have to go to a healer of the mind, for cures of this sort are not to be effected by the best of books, were it *L'Education de la Volonté*, by M. J. Payot, or Sir John Lubbock's *Happiness of Life*. There must be, if I may say so, a series of hand-to-hand fights between the failing will of the idler and the moral energy of his physician.

Specialist doctors for the mind will be forthcoming before long, we have them indeed already. A good doctor for nervous patients is also necessarily a good hygeist for the mind, neurosis being, in fact, only a bad habit which the cerebral action has contracted.

Unknown to themselves, perhaps, very simple practitioners—not taking able psychologists into consideration—have already effected moral cures in a great many cases. For my own humble part—and therefore it is that I write—I have cured some idlers, who certainly did not come to consult me because a plate on my door under my name announced: "Cures feeble minds and faltering wills; consultation from one to three o'clock; at his own house in the morning." Indolence, you must observe, is seldom an isolated phenomenon. Want of will-power is accompanied by other symptoms for which the doctor is consulted.

A very great majority of slothful persons of adult age, those whom we may call of flagging will, are at the same time "of flagging nutrition," to employ the classic expression of Professor Bouchard, dyspeptics or neuropaths. And, having come to the doctor for treatment of dilatation of the stomach or neurasthenia, they ought to leave him, after two or three months of appropriate treatment, cured of the debility of their will likewise.

As for those who are quite well, who delight in their idleness, whose happiness it constitutes, let us not try to come to their aid. Take it on my word that persons of that sort are incurable, for they have no compunction; those who feel no misgivings, those who do not suffer, cannot wish to be cured.

But how many are there who suffer severely from the sense of their own weakness, and how many who live under the continual and cruel dread of failure! One of these—he has since been cured—made his plaint to me thus: "I begin and do not finish. When I conceive a work, I become desperately impatient to attain its aim, I want to reach it already. But all things need patient, continuous effort for their accomplishment, and I never complete anything. . . . One gloomy day I saw in the outskirts of the town a big piece of waste ground with more potsherds than grass upon it. Three or four houses had been begun there, charming little hotels in red brick and white stone; for three or four years the walls had been standing, but the floors had never been laid, the roof had not been put on, and the empty window spaces stood agape. I know nothing more heartrending than these unfinished things. And my mind is just like them, a rubbish-strewn plain with some pretty houses on it which will never be roofed!"

Those who, like the writer, are sympathetic, are they who may be saved; they are sensible of their malady, and feel its pain so acutely as to long for cure. Also they are not too proud to seek for aid.

But here an objection arises, and I do not wish to elude it. Bourget has defined it in a jest equally smart and unjust, by saying that the doctor's dream has always been "to substitute a box of pills for the Gospel."

It must be acknowledged that the higher hygiene which I propose can only be exercised efficaciously by a *tête à tête* in the consulting-room of a specialist, and that it actually is lay confession, without prestige and without poetry, at

the tribunal of a priest who takes money for his 'opinions,' does not wear a habit, does not claim to represent God, and has no power to "bind or loose" souls. In the case of women that objection obviously becomes more serious.

For the first time perhaps, in reflecting upon this, I understood the grandeur, the profound utility of the Sacrament of Penance. But nevertheless it may be urged that faith is not universal, and that a moral system is urgently needed for those who do not believe in the pains of hell or in the rewards of heaven; also, that we can assist the priest who directs the conscience of fervent Christians, by indicating practical processes of well-doing, means to the end of duty. The confessor points out the right way, quotes a text of Scripture, and says: "Go in peace, sin no more, my son." That does not always suffice to transform a soul. Perhaps, if he knew where to find him, he would be very glad to confide his backsliding penitents to the hygeist, who would invigorate their brain, and increase their vitality, by dispelling the torpor of their minds.

It must also be borne in mind that Christian morality aims much more directly at recruiting souls for heaven than at training strong and valiant combatants for the battle of life here below.

And yet, we must train for the conflict, try to avoid the waste of ourselves, use means to enable us to 'will' strongly and perseveringly, under pain of being swallowed up—we, the sensitive Latins—by the races whose spirit is practical, whose ideas are terrestrial, and whose hopes are immediate. A day will come, I think, when there shall arise an upright and intelligent physician, strong enough

to defy ridicule, and authorized by a noble life and the merit of his labours to lay claim to the superior dignity of a moralist. If he knows the human heart well, the future is his, because he can draw the sick of soul to him under colour of neuropathy.

As a Marcel Desprez disciplines tides and cataracts, the forces of blind nature, so the sound medical moralist might be able to double the amount of voluntary energy and moral strength in us all. And perhaps it is already possible to forecast the means by which he will make a channel for those undulating waves—weak human beings—wherein they may take form and consistence and be no more scattered and lost. If any ethics have a chance of meeting the requirements of the eclectic time we live in, is it not a system which does not interfere with Christian morality, but completes it by coming to the aid of those who have lost faith, or have lost strength of will to use it?

2.

Every time that I have ventured to manifest the hope of a new morality, capable of assisting feeble volition and contending successfully with human indolence, I have been answered as follows: "But sloth is admittedly the most incurable of ills, the only remedy for it being obviously work, and work being exactly that of which the slothful are incapable."

This is a paradox easy of refutation, but which may look like a serious argument. Taine thought—and many physiologists are still of that opinion—that the cerebral cell, including the temperament incarnate in it, otherwise the mind, is a thing immutable and fatal; that no human

power can render it better or worse. But this is, in my firm belief, a doctrine frequently refuted by the reality, a doctrine, moreover, which is sufficiently controverted by the indisputable fact that the majority of idlers are not always idle, and that in a great number of instances among ourselves the will oscillates precisely in the same manner as the mercury of a manometer.

Let us take the slothful for what they almost always are, neuropaths, and neurosis for what it frequently is, a bad habit of the cerebral action. Let us admit once for all a vast number of indifferent and insensible persons on whom nothing has a hold: these are condemned, and their fate does not touch us because they do not suffer. But the remorseful idlers, the intermittent idlers especially, are susceptible of cure, or of amelioration in a very large proportion. I assert this because I have seen it.

Their class is formed of persons who await inspiration to work; inspiration, that is to say the faculty which we all have more or less, according to the moment, of realizing our thought naturally, without effort, of working easily, with the plenitude of our mental power.

Such persons may be compared to those Paris vagabonds who make it their business to run after cabs and carry our boxes when we come off a journey. They hang limp and idle about the railway stations all day; a cab laden with luggage passes, at once they perceive the possibility of earning a few pence, without delay. And there they are, tearing along from Orleans to Auteuil, or from Saint-Lazare to Bercy, panting, flushed, sweating, expending an immense amount of force in following the horse's trot, exaggerating their fatigued appearance,

trying to inspire pity, and ending by feeling it for themselves, hoping that the occupant of the cab may think: "That man must be very poor and have plenty of spirit to do such a feat of strength!" A feat of strength indeed, one more exhausting than a regular day's work. But the good bourgeois of Paris, who is never mistaken, holds these people for idlers and is but slightly moved to compassion.

The idlers who belong to the liberal professions are frequently of the same sort: they are capable of great momentary efforts, but these are divided by long intervals of unproductiveness, of cerebral inactivity. They remain inert, forming plans, so long as inspiration does not descend upon them, so long as they are not impelled to act by want of money. But every now and then they do make an effort, a momentary effort. This fact offers the best means of cure.

The point no longer is to make a person work steadily who has hitherto never worked at all, but to change those vehement impulses which exhaust brain-power but give only partial results, into regular, moderate labour, without fatigue. This is a very feasible object, the transformations of human force being obedient to the same laws which regulate the transformations of physical force.

It is said of some great men that they underrate themselves, making little of the importance of the gifts bestowed on them by nature, in order to enhance the merit of their triumph over their original weakness. Studying them closely, I think this is the fact, and that slothful neuropaths, when they are resourceful, constitute the real nursery of great minds. How many

illustrious men were very bad scholars in their childhood? Judge by the few names I group together.

Alfieri, the Italian dramatist, was so lazy that he had himself tied to his table in order to force himself to realize the conceptions of his mind in written, definitive words: so prompt was he to imagine, but so strangely reluctant to face the actual task to be accomplished.

J. J. Rousseau relates in his *Confessions* that for several years he could not think consecutively and dictate unless he was lying down. No sooner did he stand up than his brain became anæmic, his memory failed him; it was impossible for him to fix his attention, he lost the thread of his ideas. Although his life was not a model of moral dignity such as we conceive it at the end of this century, nevertheless, we cannot deny an important place in the history of the human mind to that neurasthenic 'subject.'

Goethe, the Olympian, whose image and name occur to us immediately when we would evoke the most perfect example of self-government on record, whose brain seems to have been incapable of fatigue, could not work for more than a very few hours each day; he wrote only in the morning. "I devote the rest of the time to worldly affairs," he remarks in his Life.

But the example of the great Darwin is even more demonstrative.

Darwin, the philosopher who has changed the aspect of science and offered to mankind one of the finest and the most probable of the comprehensive conceptions of the universe, the earnest seeker whose personal observations and reading were of vast extent, had a slow mind, and an

uncertain memory, so inactive that "it was impossible for him to remember a line of verse or a proper name for more than a day or two." He was devoid of imagination, and he acknowledged with the sincere modesty characteristic of him that he had too little of the critical faculty to venture to pass judgment on any man's work but his own.

Always ill, and always tired, he lived winter and summer in the country, and he was so quickly exhausted by fatigue that he was forbidden to receive visits from his friends and to talk.

He could work with energy for only one hour a day, from eight to nine, then he joined his family, and for recreation had the newspapers or a few pages of a novel read to him ; at half-past ten he returned to his laboratory to remain there until mid-day, and this was the utmost limit of his working power. Few men were so feeble, few have accomplished so onerous a task. He affords an example of the admirable potency of a predominant idea, I was about to say a fixed idea, in an ordinary brain.

The indolent justly complain that they grow tired easily, and cannot fix their attention on the same subject for any length of time. Darwin, who could hardly work for more than a single hour consecutively, suffered more than most from that exhaustion of the will, that paralysis of attention. But the genial neuropath had an instinctive conception of the good that may be got out of it. He had divined that persons like himself, sedentary, feeble, full of fancies, slaves to their habits, may change these defects into virtues, may make their unsociableness a salutary self-communing, may substitute involuntary attention, engrossment in one sole idea, a hobby perpetu-

ally ridden, for that voluntary attention of which they are incapable. Let this 'hobby' be a fertile idea, and its constant presence, which is a torment in the case of many neuropaths, may become genius. This is the strength of the thinking reed ("le roseau pensant"). All those who knew Balzac, Théophile Gautier among others, have informed us that very often he would tell how he had been born indolent, and would talk with pleasure of the trouble it had given him to conquer sloth, his enemy. And his example also is instructive. Look at that shelf of your book-case on which the twenty-six large volumes of the Lévy collection of Balzac's works stand. Weigh each of these volumes by hand, reckon the lines to the page; remember that Balzac re-wrote his "copy" three or four times, if not more; recall the number of never-to-be-forgotten personages whom he has created, and how important to the direction of men's minds in the nineteenth century his works have been, and then reflect that the vast amount of labour represented by those volumes was accomplished in barely twenty-three years, by a man who liked everything in life *except work!*

Balzac, having incarnated himself in Valentin, writes of that self as follows: "This daily sacrifice, this toil of the silkworm unknown to the world, which, perhaps, finds its sole reward in the work itself. . . . Since I reached the age of reason until the day when I had terminated my task, I have observed, read, written without intermission, and my life was like one long 'imposition'; I had an effeminate longing for oriental idleness, I was in love with my dreams, I was sensual. Well, I have toiled always, depriving myself of ever tasting the pleasures of Parisian

life: with the inclinations of a gourmand I have lived abstemiously; delighting in movement and in travel by sea, desiring to visit foreign countries, even taking pleasure in making 'ducks and drakes' in the water like a child, my life has been passed sitting in my chair, with a pen in my hand."

What a fine cry of revolt against the tyranny of the fixed idea which makes you greater than yourself and stronger than your own strength; and shuts you out more effectually than the cloister from the joys of 'here-below'! Unless, indeed, it be that the only calm enjoyment, the only pleasure without painful reaction is just that of having accomplished one's task, having utilized one's latent energy, having dragged the spirit that was in a state of ferment out of one's self and got a piece of work out of it. None of the great workers of the present time have furnished me with documents so precious as those for which I am indebted to M. Emile Zola. I have been enabled to study him closely and at leisure, being one of his intimate friends. And indeed it was the example that he offers which first led me to reflect upon indolence and to seek for means of getting the better of it.

Apart from the question of liking or disliking his works, no one will differ from me, I think, in regarding Zola as the most powerful, the least *raté* of the writers of the time. He has inspiration, has he not? And his creative energy has not failed in over thirty years of work. Well, then, this great toiler cares only for repose, and his sole aspiration is towards the blessed moment when, his task complete, he may abandon himself without remorse to the delight of doing nothing.

He is only partially gifted by nature. His faculty of attention is but indifferent. Unless it should be absolutely indispensable to the novel which he is concocting, he cannot stand the reading of an abstract work, and of the books which he consults he only takes what he can utilize. He does not seek information for the sake of being instructed, and his brain 'gives out' at once at student-work.

As for his will-power, he has always suspected it of being so ready to fail, he knows so well its lack of vigour, that he has invented, by instinct, some excellent devices for getting the better of it.

You remember, in *La Joie de vivre*, the character of Lazare, who conceives magnificent projects but never carries out one of them; who begins a hundred things but never finishes any; that admirable hero of a psychological romance in whom the pessimism of the powerless is embodied with such intensity? One day, when I had expressed my pleasure that he had created this character, Zola told me, quite simply, that all his life he had dreaded being himself this very Lazare, that always he had suffered from the dread of failing. It is from one's own inner self that such images are evoked! The Goncourts wrote: "It may be that the greatest poets are the unpublished ones." That profound saying proves that they themselves felt at times the self-mistrust imparted by the disproportion between fancy and fulfilment, and that they knew how great a distance divides the hope of a fine piece of work from its complete realization. It may be that Zola himself came very near to being one of those unpublished great poets.

He saw the danger of this, and trembled at it; but he dodged the threatening tendency cleverly; he got rid of it himself by devolving it advantageously upon one of his heroes.

Consider this once more: *Z*ola cannot work for more than three hours of the twenty-four; he has never been able to force himself to do so. "I am so ill that I have to go to bed when I exceed the limit," he has often said to me.

Moreover, these three hours' work daily (interviewers have frequently stated this) are not consecutive. One hour immediately upon rising, one hour of excellent work while the mind is lucid and lively, when sentences run from the pen's point, rapid and clear, and he is already tired; he must eat a little to recruit his strength, and read newspapers to divert his mind.

From ten to twelve *Z*ola works again, less easily, and not so well as during the first hour, and there is an end of it for the day; afterwards he can only write letters.

Here, then, we have the measure of the power of the most potent brain in the literary sphere at the end of this century. By a regular little routine of three hours a day divided into two spells of work, this man, whose faculty of attention is only moderate, whose will-power is not at all formidable, whose thinking-power is quickly exhausted, is enabled to produce every year a book in which nothing of all that constitutes the recreative force, that is to say genius, is wanting.

If I have dwelt upon this example it is because it seems to me exceptionally instructive and interesting; it is because that method which reporters have so often

described as a 'documentary' curiosity, that hygienic system of work which Zola created by instinct, without having any idea that more than one great man, and Darwin in particular, had adhered to similar rules.

Is not the grouping of these small facts of literary history the best lesson of hope that can be given to those who feel their own feebleness, and despair of strength? Darwin was more weak than they, and Zola's will was not worth much more than theirs.

We may, then, arrive at the conclusion that the man who is distressed by remorse for his idleness and by the fear of failure, *can* cease to be an idler.

There are tonics for the nervous system which restore failing strength and enable the patient to fight against fatigue, and we already foresee expedients for making up for the deficiency of voluntary energy and perseverance.

From the examples just cited let us now endeavour to extract such rules of health as the idle ought to follow spontaneously, if they have the courage to submit to a rule of their own accord or under the direction of a teacher, if their brain, still somewhat puerile and school-boyish notwithstanding their age, requires supervision and an immediate reward for good conduct. I know many cases in point.

3.

The examples of those great men who have extracted a gigantic life-work from a grudging brain speak to us with lofty eloquence. Courage is contagious: it is strengthening to learn that Zola had originally a marked taste for repose, that Rousseau's brain was so rapidly

exhaustible that he had to dictate lying down, and that Darwin was among the weakest, the most quickly fatigued of men. But we must beware of deceiving ourselves respecting the number of idlers who are spontaneously cured; they are almost as rare, almost as 'phenomenal' as those great heroes of history who, untaught, created for themselves an alphabet, learned drawing, or, like the youthful Pascal, invented geometry. If it were the case of you or me, who are not heroic, I imagine that for intellectual weariness, as for a sluggish digestion, we should have in all humility to refer that case to a competent man, fit to give good advice and capable of watching closely over the carrying out of it. We are in general bad doctors in our own cases, and the most admirable self-analysis is frequently associated with quite contrary action. The conscience is in the case of many men so anæmic, so to speak, that they require a visible witness always near them, a real pressure to constrain them to regular work.

In the year of my preparation for the house-surgeon's examination, three of us, all from the same part of the country, agreed to combine for a common effort, and we worked without intermission; but if one of us remained alone for some hours in succession his native idleness would resume its sway; he would study carelessly, go to the window, gape at the horizon, do a hundred useless things or nothing at all, but feel horribly bored. "Dawdling" is the very word to express that inaction which one so often prefers—notwithstanding the cruel ennui of it and the grey gloom it brings—to regular occupation, which makes the hours short and leaves the

nervous system in a satisfied and tranquil state, as a good meal does when one has been very hungry.

I have stated my reasons for thinking that the guardian of the mind of others ought to be a physician. The fact, which has been demonstrated a thousand times, that if an idler be closely studied he will almost always be found to be a neuropath, leads us to institute a system of treatment for the body, hygiene for the animal, to match and support the hygiene of the mind.

One of the cardinal symptoms of neurasthenia is unfitness for prolonged work, the manual or intellectual work which the business of each day exacts. This 'fashionable malady,' as it is called, is an exhaustion of the cerebral cell, with fatigue of the entire organism, relaxation of attention, and debility of will. It is, then, logical to apply to sloth the rational treatment of neurasthenia. The conditions of that treatment I have already endeavoured to lay down with precision in a small technical work.

To cure a sufferer from neurasthenia, who is susceptible of cure, I consider it is necessary:—

1st. To regulate as monks do, the employment of the twenty-four hours; that is the condition of intellectual peace, and we shall see, a little farther on, what an advantage the mind derives from self-discipline.

2ndly. To subject the patient to an alimentary regimen, in order to get rid of the weight in the stomach, congestive pressure, sleepiness after meals, and alternations of cerebral excitement and depression, which are caused by slow digestion. Men of feeble will are frequently men of slow digestion also; besides, the mind of anybody who

has a red face on leaving the dinner-table, breathes short, and feels a burning sensation in the æsophagus, will be cloudy and confused.

3rdly. Regular sleep, without nightmare dreams, the sleep that repairs, must be restored to nervous persons; the latter frequently suffer from insomnia.

4thly. It is important to procure such tonics for them as will progressively restore, not momentary strength, but tonicity, constant tension of the muscles, vigour always at the disposal and command of the will.

Drugs, elixirs, wines, syrups, or gilded pills not only injure the stomach rapidly, but are seldom good tonics for the nervous system. It is almost always better to give the preference to mechanical means, massage, the douche, physical exercise (the bicycle used with discretion), the sparks of the static machine, the air cure, subcutaneous injections of neutral salts, friction with the hair-glove.

Let us be practical. The indolent who come to consult us have not in general necessary leisure for an air cure on some healthful height; they must be treated at the place where their work ought to be done, and these are the patients whom one should keep close to one's self so as to be able to watch their progress day by day. Under these conditions, the transfusion of serum seems to me the most simple, active, and handy of our tonics for the nervous system. If I am to take the current physiological jargon I must say that the whipping up of the cerebral circulation by this means accelerates nutrition and greatly facilitates "the process of cellular integration and disintegration," which is another way of describing the

activities of the mind. Observe how, immediately, when the action of a remedy is the matter in hand, the incorrigible doctor of Molière's comedies resorts to big words as a dwarf resorts to high heels, instead of saying simply that a little salt water under the skin stimulates the human machine and enables the weak brain to fight against sleep, to resist fatigue, to understand more clearly, and to forget less quickly. But, to abandon the vague and the undefined, let us suppose that an indolent neuropath has come to consult one of my medical brethren on his case. The latter will write out a detailed prescription for the patient:

RULE OF LIFE.

At seven o'clock.—Rise; intellectual work (about one hour and a half).

From half-past eight.—Breakfast; reading of newspapers and letters.

Ten o'clock.—Work (again one hour and a half).

Half-past eleven.—Rest.

Noon.—Luncheon; half an hour's rest, and three-quarters of an hour for walking.

Afternoon.—To be devoted to ordinary occupations, visits, and business matters.

Seven o'clock.—Dinner, rest, and walking.

Go to bed at a fixed hour within the limits of possibility.

If the patient be exceptionally weak and has lost flesh to a considerable extent, or if he is a nervous subject who sleeps badly, he must be advised to seek his couch immediately after he has eaten his evening meal. Insomnia, in the neuropath, is a bad habit and ought to

be treated as a mental phenomenon; it is frequent in the cases of indolence. The idler's brain, not sufficiently worked during the day, remains excited during the night, Insomnia is also the torment of almost every 'intellectual' who writes in the evening, and whose head is still working by acquired speed, at the hour when he would fain sleep. A strict rule of life is better in such cases than the use of hypnotic medicines; all these have their disadvantages.

These precautions will probably be regarded as puerile in the extreme, and even as absurdly tyrannical, provoking the reader of this chapter to much shoulder-shrugging. But I hold that one must be able to brave ridicule; it is not for a sceptic to moralize. I know, besides, that a malady of the mind is far from easy to cure; in theory a few lines suffice, in reality one never succeeds by offering vague advice, but solely by taking the trouble to regulate the employment of the day even in the most minute details. I go farther than this; the doctor-moralist must resign himself to playing the unenviable part of a *surveillant*—I was about to write the word *pion* (usher in a school). He ought not to shrink from making his appearance unexpectedly now and then, in the morning, at the abode of a particularly refractory patient, just to see whether he is at work according to his promise. A little self-sacrifice is not out of place in such a matter as this. In general cases it will suffice that the doctor makes sure of the complicity of a companion, a mother or a friend, whose mere presence constrains the idler to keep his promise and to acknowledge his lapses. When they are kindly spoken to, gently handled in the moral sense, almost all sick people are touched at last by the trouble that is taken for them;

none of those who are treated in this fashion will really resent such meddling severity and troublesome zeal.

Apply these reflections to the physical side of the subject, the necessary treatment of the stomach in cases of indolence.

Let us take a strict regimen as typical: this is meant only for cases of long-standing disorder of the stomach, in which digestion is fatiguing or headaches of gastric origin occur. The following prescriptions are mostly temporary only; the patient may relieve himself of them when permanent amelioration has been obtained.

FOOD REGIMEN.

Injurious foods.—The crumb of bread, soups, sauces, spiced dishes, 'high' game, heavy fish, shell-fish, oysters, raw salads, radishes, acids (vinegar, sorrel, tomatoes), fatty foods, 'charcuterie' (all except the lean of ham); fried foods, such as potatoes, dry haricot beans, cabbages, cauliflowers, Brussels sprouts, asparagus; sweets, pastry, milk foods, raw fruit (except peaches and grapes).

Foods to be recommended.—Toasted bread, to be eaten cold, or the crust of bread rasped; eggs (except hard in the shell or much cooked); lean of ham; light fish (soles or whiting); white and red meats, grilled and roast, rather underdone, in moderate quantity; green haricot beans, purées of green peas, dry peas, lentils, potatoes; purées of cooked salad (cress, chicory, and lettuce), endive and celery with its juice. For dessert, biscuits, compotes not much sweetened, very ripe peaches and grapes (in moderate quantity), Chester and Gruyère

cheese. Very little butter should be used in preparing these articles of food, which should not be peppered, but salt may be used rather freely.

Many doctors forbid the use of coffee. For my part, I think neurasthenics are tonified by a small cup of black coffee after the mid-day meal. If it is found that coffee troubles the digestion, it may be replaced to advantage by a very small quantity of cafeine. Valérianate of cafeine is an excellent tonic and quieting preparation, and generally suits nervous persons very well. The suppression of alcohol I regard as all-important; it revives only for the moment, and the immediate cerebral excitement which it causes is constantly followed by a falling off in strength. The douche, dry friction, and the transfusion of serum are tonics more than sufficient, perfectly harmless, and their action is more lasting than that of a glass of burgundy.

This physical treatment, this hygiene for the animal as we have already described it, which varies in the different cases of nervous persons according to whether the latter are fat or thin, anæmic or full-blooded, old or young, is intended, let it be well understood, not to cure indolence, but to quiet and regulate the action of the central nervous machinery. It means the cure of the sick nerves, preparatory to that of the sick mind, by a course of psychological treatment, otherwise the implanting of useful ideas is only possible in newly-tilled soil, cleared of its weeds.

By doing away with the excessive stimulation proceeding from stomachic fermentation, by regulating the mode of life and prescribing good tonics, we give to the sick

brain peace and vigour, conditions indispensable to long-continued intellectual labour. On the day when our idler shall have a good appetite and an equally good digestion, when he shall enjoy long and refreshing sleep, when you shall have procured strength for him, which is at his free disposal, the only thing left for you to do will be to teach him how to use it. But he must be made to understand that force cannot be accumulated in the brain of man with impunity, that he must know how to expend it, how to utilize it regularly, under pain of injuring his nervous system as seriously by the overstrain of congestion, if I may so call it, as by the other kind of overstrain, i.e. an excess of action. The nervous energy which we do not transmute into *Labour* manifests itself all the same in the form of enervation, convulsive attacks, fits of anger or of tears, and nothing pacifies like work.

4.

If we would sum up in a sentence that which we have learned from modern psychology—and especially from the close investigation of M. Pierre Janet—concerning the state of mind of the neuropaths, those worst failures of life, led astray by their nervous system, we shall have to put it thus: these persons are absent-minded, absorbed by a fixed idea, and overpowered by unconscious inveterate habits, which place them, so to speak, outside of our common life.

Distraction, absence of mind which has passed into the state of habit, makes an hysterical person remain for months in a condition of unconsciousness or with one side of the body paralyzed. Sufferers from neurasthenia

and melancholia are frequently victims of cruel fixed ideas, and we know with what terrible facility they take to drinking alcohol, morphia, and ether.

Let us try, by way of comparison, to find the psychological definition of a great man, and we shall be led to conclude that the hero—almost always somewhat of a neuropath himself—is absent-minded, absorbed by a fixed idea and sustained by inveterate habits which lift him up, so to speak, above the common life.

Darwin—certainly a neurasthenic person—absorbed by the idea of the origin of species, owed it to his habits of life, peculiar and fastidious to the point of mania, that he was enabled to accomplish a colossal task. Almost all the other examples in the intellectual sphere may be classed with this one. Then, the same elements exist in the case of the great man and the failure, and neurosis is the double-edged weapon, the Janus with two faces. Therefore it is that so many great minds are haunted by the fear of failing: the phantom of an idler who is as like them as a twin brother goes with them always, everywhere. Only Joseph Prudhomme in his "juste milieu" is out of the reach of danger.

I think I am not mistaken in saying that a great mind differs from a neuropath only in the fact that his fixed idea is noble, and that his habits are excellent. If we accord our admiration to a man, it is because we see that he does not waste or destroy his strength, that all his energies are utilized with uniformity and perseverance towards an object selected once for all. It is this notion of self-utilization that arouses our enthusiasm and incites us to imitation.

Well, then! Let us learn and remember that in the practice of life it is frequently possible to substitute a fixed idea for an absurd obsession, and excellent habits for the most deplorable whims. In this precisely the psychological treatment of indolence consists; this is the patient task that the physician of strayed minds ought to undertake.

To constrain a feeble brain to the obsession of a good idea is not a superhuman labour for one who goes about it adroitly. It amounts, in fact, to imitation of the woman who wants to make herself loved. Just see what her infallible instinct dictates to her. In the first place, she adorns herself, she sets off her charms to the best advantage; then she contrives to be seen frequently; her presence must be made habitual, if possible necessary; so that surprise and pain may be felt when she is looked for in vain. Lastly, she endeavours to inspire the sentiment of jealousy, to make it understood that she is an incomparable treasure, and that another may win her if you do not come forward.

Imitate her, you who desire to learn "the marvellous art of capturing minds." Help your patient to choose an employment really in conformity with his vocation. Embellish the idea with every gem of hope that can be hung upon it: contentment with one's self, worldly importance, fame and fortune to be won. Talk of it constantly; make it come back and back like a *motif* of Wagner's, press it upon attention by reiteration: soon, you will see, the brain will allow itself to be caught; it will not be able to do without that dear besetting idea. Lastly, when this is so, when the idea has become dear,

when the brain loves it as one loves a woman, make it be understood that the idea is for everybody, that it is in the air, and may be snapped up by somebody else if your patient does not make it his own at once.

Thus it is that real advantage may be taken of our worst faults, vanity and jealousy, and that the fixed idea, which is a malady of the mind, may be changed into an element of creative energy. What a resource for the indolent and the weak!

"Obsession" is an idea which comes to us without effort and as it were in spite of ourselves; it is attention, impulsive and consequently unfatiguing, involuntary, substituted for the voluntary attention of which so few men are capable. I do not know any faculty higher or more rare than that of being able to fix one's attention at once and completely on the desired subject. To bend the mind and keep it freely, at command, to a fixed point of effort, is the ideal of mental operation, and it is very rarely attained.

Goethe reached it in his later life, owing to the severe mental gymnastics of his daily conversations with Eckermann. But what an exceptional brain! the immense majority of intelligent men think only on subjects which present themselves or are forced upon them; we seldom choose our ideas; they take hold of us, they haunt us, we follow them as the somnambulist follows the shining object which has caught his eye.

And therefore, is it not best, by resorting to an eminently moral device, to render the ruling idea, which should make us act usefully and save us from unproductiveness, engrossing and irresistible?

Advice must of course be varied according to the character and profession of each individual.

I have had men of widely differing social positions under my treatment for both neurosis and indolence at the same time; students, composers of music, candidates for the École de Guerre, men of letters, lawyers, stockbrokers, adolescent school-boys, politicians worn out by electoral campaigns, the hopelessly poor and the idle rich. For each of these I have had to choose a governing idea suitable to his employment and in proportion to his strength.

It would be an endless task to give minute details of the treatment of indolence in these several instances; but it is necessary to lay some stress upon one point.

When the doctor-moralist is endeavouring to inculcate a valuable fixed idea, let him beware of pointing out a distant object to his patient, let him not dangle an ambition that will be too long of fulfilment before his eyes. Indolent neuropaths are almost always afflicted with a sort of myopia of the mind which prevents them from seeing the object plainly unless it be near. Think of those young men who, having no notion, until a few days before the trial, of the difficulty of an examination, the importance of success, and the scanty measure of their own knowledge, suddenly, at the last turning of the road, perceive the goal, are struck with remorse for all the time they have lost, and make a violent effort, too late. I know some who, all through life, employ no better method.

But this evil is not without remedy.

Candidates for house-surgeonship at the hospitals employ a practical means of preserving themselves from

these errors. They form groups of ten or twelve, under the direction of two or three former house-surgeons, charged to train them and prepare them for examination. These "chefs de conférences" draw out a long programme of all the questions which may be put; then they prune this programme and cut out for each week the exact work to be done. On Saturdays the "conférences" are held, that is to say there is a sham examination. The students read a written composition which is argued upon by their chiefs and their comrades, and discuss oral questions; as the number in the groups is small, the turn of each comes round often, and their pride, being actively stimulated, keeps them up to the mark for the length of the week. Many of these students are impressed by the fear of making a pitiable appearance in six days' time, who would not be spurred on to exertion by the dim image of the great competitive examination eight or ten months ahead of them.

I am aware of the drawbacks of such a method, and I know that these "conférences d'internat" have been compared to racing stables, with their trainers, their favourite, and their outsiders! But is it not evident that the strong, the men of powerful individuality will always escape in time from the domestication of the mind? And this organization of work, these stages at fixed dates do really afford very great assistance to the intelligent, ambitious and yet weak minds to whom this little study in practical morality is addressed.

5.

And now that his vocation is settled, that he has made a plan of his work, defining each step of the stair he

means to climb, the idler must still be constrained to be no longer indolent, to work patiently, continuously, at the accomplishment of his task, at the conquest of the promised land. This is the culminating point of our mind-cure, but not the most difficult moment of the moral treatment. If I am to decide from the facts observed I should pronounce the latter to be the prevention of frequent change of his fixed idea by the idler.

All things considered, it is a less heroic feat to do away with indolence itself than might be supposed. This may be achieved by adding to that psychological device the fixed idea whose utility we have just investigated, a second of the same order, *habit*, custom.

We know that neuropaths and sufferers from exhaustion of the nervous system have a special tendency to subject themselves to routine, to become 'oddities,' to act by habit only. Let us then try to understand that word.

The human mechanism has two modes of working. One consists of voluntarily concentrating all our mental faculties upon a desire in order to realize it, and saying in our inner language, I will! This is what we call a voluntary effort, and nothing is more fatiguing, nothing demands a greater expenditure of nerve-power. The other mode consists of abandoning ourselves to the impulses by which we are moved, of acting automatically, and automatic action involves only an insignificant minimum of cerebral fatigue. (See preceding chapter.)

A child is learning to walk; at first all that is in its little being of attention and voluntary energy is concentrated upon the one desire to keep its balance and to make a few steps. Walking is, at that moment, a

voluntary act which exhausts the brain quickly. Later on, when the training has been sufficient, when the habit has been acquired, walking will no longer be for him anything but an automatic phenomenon, requiring only very slight attention, a phenomenon which the spinal cord produces of itself, without the superintendence of the brain and without fatigue to the mind.

All who have learned bicycle-riding will more easily take in the truth that the first start only is a painful act; that at first, in the school, all your attention and energy were concentrated to almost a distressing extent on the desire to keep your balance, while you now roll along thinking of anything and everything else, drinking in air, delighting in movement, without being either cramped or fatigued. You have adopted a habit.

The culture of our mind is to be compared exactly with this training of the muscles. The start is in truth the only difficult task, the only painful moment; but the continuity of exertion carries with it, instead of exhaustion, the pleasure of action, of force legitimately expended, of balance regained. Training is, above everything, the possibility of action without becoming weary, and afterwards, the intense satisfaction of performing deeds of which others are incapable. This is equally true of a man whose profession is science or politics, or of a great writer, as it is of a champion sportsman. Then, whether it be muscular or intellectual labour that is in question, the acquiring of a habit amounts to the substitution of an automatic action, without trouble or fatigue, for the voluntary action of a difficult and painful beginning.

And the physiological cure which we are now led to

adopt consists in rarefying the new departure as much as possible, and securing the habit of daily work, even to the point of making a fad of it.

I know active men who, on Sundays, have vague ailments, attacks of giddiness and headaches, because their disposable energies are not occupied, because the work for which they are prepared fails them. Habit has become a necessity to them which they can no longer elude without suffering. This result should be the aim of skilful training.

Idlers who are cured—I know some—are quite upset, thrown off their balance, feel far less calm and content, when a circumstance independent of their will has deprived them for once of that daily bread which their work has become.

I do not pride myself on having invented this great remedy of habit. For a long time the greatest minds—in science, philosophy, or letters—not being able to bear work by fits and starts and repeated beginnings again, have quietly subjected themselves to the rule which their instinct suggested. I have taken their method in order to try if I can make a more general rule of health of it.

In the preceding chapter I have shown that those great writers, Balzac, Hugo, Michelet, and the elder Dumas, worked every day at the same time for a fixed number of hours; just as our brain, accustomed to awake at a set hour, spontaneously quits sleep and commands the eyes to open at the same minute every morning, so their minds, being accustomed to kindle at such and such an hour of the day, called for work, demanded it imperiously when the hour was come. Work became a regular

appetite for them, like a hunger of the soul. Each of these great toilers had to make only one start in each work. The first pages cost them an effort and produced fatigue; the rest came on at a quiet, even pace, and the monotony of the task did not render it commonplace, its inspiration was not affected.

Mme. Sand even surpassed these great writers: in order to get rid of the painful effort of the start, she placed no interval between the end of one novel and the beginning of another. It was hardly becoming to the dignity of her art that she should not take breath after mental child-birth, but the anecdote is curious as a ready-made 'observation.' That outset which is so grievous, which makes us do our work ill during the first hour, even at the time when the brain is liveliest, that wretched moment of the start which workers have to face at each fresh attempt, a woman got rid of for ever, by not allowing her creative thought to cool any more than the vigilant flame of some great furnace is permitted to become extinct.

Do not suppose that the masters of the present day are less methodical, or more fitful over their work than those of 1830 and the middle of the century were.

M. Bourget has written the following: "As for the novel writers and dramatic authors who pique themselves on living to write, and who seek for inspiration elsewhere than in regularity of habits and at their writing-table, their work is stricken with barrenness beforehand."

I think it was from Zola that Bourget learned the advantages of habitual and regular labour. Here we return to the author of the *Rougon-Macquart* series. His

psychological case, closely studied from nature, has been used as the starting-point of this essay, and again it is he who will enable us to settle certain complementary questions.

Is it better to work in the evening or the morning?

How should we set about our work?

How long should we remain at work?

What kind of work is the most profitable?

I attach a great deal of importance to these questions of detail. Anyone who is treating a feeble mind and wants to make it contract a good habit, will soon perceive that it is not enough to advise the patient to work every day and each day at a fixed hour.

A little more trouble than that must be taken. Precision in detail is the thing that roots habit deeply, and makes it lasting. A good habit, to be valid, especially in the case of a nervous subject, ought actually to become a fad.

In laying down the rules of health which we regard as capable of making up to some extent for the want of moral energy, in prescribing a rule of life for the use of the indolent, we have had to pass over two or three points which deserve a little consideration. A mind-doctor ought, I think, to make himself understood by his patients, usually persons of quick and restless intellect, always prone to distrust and despondency. A neuropath of the superior kind does not collaborate in his own cure unless he has a clear idea of the means employed and the reasons for them. In the greater number of the cases of indolence with which I have had to do, it would have been a great mistake to assume the arbitrary tone and loftily dictate

hermetic orders. Constrain a patient to work at a fixed hour for a prescribed time, but tell him why. Explain your tyranny: there is a great deal more chance of one's curing a patient whose interest has been aroused, and a good way to inspire confidence is to talk reasonably and to prove what one has said.

1st. *At what hour ought one to begin to work?*

"You are for the morning? Oh, but I am for night; ideas do not come to me until between ten o'clock and midnight." How often have you heard this point disputed, each party lecturing upon it, turn about, and in such peremptory style!—the one extolling work done in the morning for its freshness, the other lauding the ardour of work done by night. For a long time I believed in working at night. I no longer think that destiny has for ever condemned us to prefer the hours of lamplight to the hours of sunlight. I know that neurasthenic persons in general are not brilliant and animated until after dinner, when the lights burn brightly; but I am also aware that they are far more quickly cured when they are sent to bed at an early hour, and their intellectual faculties are utilized on their waking. As a principle, one single detail is of importance to our treatment; it is that the working time be always the same for a given brain, and that the same portion of time be set apart each day for cerebral action. In practice, we have to take the organization of modern society in a city like Paris into account. A civilized person cannot be weaned from mundane life or the theatres for ever; it is, then, impossible for him once for all to consecrate all his evenings to work, under pain of sacrifices at the least useless; and therefore work

done at night will never have that automatic regularity which does away with effort, giving energy to the feeble and courage to the indolent.

As a fact we have at our free disposal only the morning, only the two or three hours which succeed our awaking, and almost always we can awake at the same hour, needing only to take twenty minutes' rest in the daytime if we have sat up late on the previous night. Let us add to this motive of daily convenience the physiological reason that the brain becomes congested automatically, and prepares itself for work with so much the greater ease and spontaneousness that it has more recently come out of the night's repose. Consider that all the great toilers whose stimulating example we invoke so often, Goethe, Darwin, Hugo, Michelet, the elder Dumas, worked, and Zola works, every morning from the time of waking, and you will be led to adopt a very general rule, with very little exception. That rule might, I think, be briefly stated thus: *In order that only the strict minimum of nervous wear and of fatigue be required, the work of intellectual production ought to be daily, regulated to a fixed hour, and done early in the morning.*

It is certainly better to write in the morning; anyone who is possessed by an interesting subject, by the salutary fixed idéa, meditates all day and is constantly preparing for his work. It will be very well to follow the example of Michelet, who, like a child conning over his lesson, read and arranged his notes each night before he slept, impregnated his brain with the chapter to be written on the morrow, and left his ideas to germinate in the quiet of night. We know not what mysterious process of

ripening takes place while thus we are sleeping, to find ourselves much better prepared for active effort on awaking.

2ndly. *How ought we to set to work?*

One of the greatest toilers of this present time told me one day—and at first I could hardly believe it—that his whole day's work was spoiled, ill done, and vexatious, when any circumstance prevented him from setting to work instantly on leaving his bed; it was enough if he loitered, dawdled for a few minutes, opened a book or wrote a letter, to prevent his mind from becoming completely absorbed in the daily task. Since then I have observed these singular failings in many other instances. The faculty of attention is so fragile in the best that it has to be caught, to be surprised before it is completely withdrawn from slumber; it then obeys passively, without pressing, at the first injunction, and remains fastened upon the object by which we want it to be hypnotized. At no other moment of the day do we find it so docile. Then, if you will be advised by me, make the briefest possible toilet, just sufficient to give you clear eyes and clean hands, and go quickly to your work immediately on awaking; you will be "i' the vein" on the instant, and the brain will at once give the best of its mental creation. This little bit of advice is of real importance. Almost all the neurasthenic persons who strictly follow it improve rapidly, and they all speak of the relaxation of the nerves, the restful calm that comes for the rest of the day from their morning's work.

Do not forget that most of the idlers whom we try to cure belong to the category of neuropaths; that it is the characteristic of neuropaths to attach great importance

to futile questions; that we must take them as we find them, and fight them with their own weapons.

3rdly. *For how long should work be continued?*

For only a short time, but that well used.

Needless to say that on this point only individual advice adapted to the requirements of the profession of the person who asks for it, and to the amount of power of endurance of the human machine, can be given. Try the strength of each one by the tentative method—the neurasthenic and the indolent cannot work for long at a stretch—and regulate the habit to so many hours a day, according to what each can do. When work is done daily, ample results may be procured without very much time being given to it.

Look at the writers; I am always quoting them, not because our method is applicable to writers only, but simply for the reason that it is easier to measure the sum of their work. It was at the moderate rate of four or five hours a day in actual composition and writing—a poet is always conceiving ideas even when asleep—that Victor Hugo produced the fifty volumes of the *ne varietur* edition.

Balzac died at fifty-one because he went beyond these limits, and slept too little. He died, worn out by excess of work; never having known any other kind of excess; he lived purely and he drank water.

The great Darwin worked assiduously for three hours only, every morning; he sometimes added an odd quarter of an hour, stolen here and there, from his eternal weariness.

M. Emile Zola devotes to his work three hours a day.

I have already dwelt upon the magnitude of that work. Three hours a day! Are you not struck by the moderation of the necessary effort, and can anything be more encouraging than such results accomplished by such means?

Beware of over-driving a well-meaning idler. Do not require more than one hour's work from him at first; augment that progressively, but do not ever condemn him to over-assiduity; teach him to interrupt his work by a pleasant little meal, a short walk, or, on the contrary, by lying down on a bed for a few minutes, if the brain readily becomes anæmic.

To have only one governing idea, to have and to keep the full sense of purpose dispenses us from very long spells of work at our writing-table. "Continuity of thought on a simple subject singularly multiplies the value of time," says the Italian physiologist Mosso. This is the wisest of mottoes; therein lies strength.

And besides, do you not find that one works more briskly when work has a fixed limit? Who knows but that the miner would do as much in his eight granted hours as he now does in nine or ten, hating the rule which a master has laid upon him?

4thly. *What work ought to be chosen in preference?*

Put in these terms, the question is rather too enigmatical: one does not choose one's line of labour; each of us is bound to submit or to resign himself to the work which is implied in his vocation or required by circumstances. Therefore I will not enter into this, but go on to another kind of choice which we are more free to exert.

In the domain of the intellectual and liberal occupations, our mental faculties may devote themselves to two several orders of labour, the toil of acquisition or, on the contrary, that of personal action, erudition, or creation. Certain 'intellectuals' are content with storing up the sensations of art or scientific ideas: these are the dilettanti and the learned. Others, instead of making a store-house of their brain, make it a fruitful spring, and produce works which may be called works of art, whether it be a palace, a picture, a symphony, a poem, or a scientific discovery.

The one class receives, the other gives. What we have learned in the first part of this book concerning cerebral physiology, enables us to understand anatomically the meaning of the words pure erudition and personal creation. (See Chapter III.)

Dilettanti and scholars make use of their nerves of sensibility only, and they apply the whole of their consciousness to perceiving a great number of sensations of art or of new ideas with intensity and pleasure. *Productive* minds 'point,' so to speak, all their mental energy upon the motor parts of their brain. They take comparatively slight note of the sensations which crowd in upon them, desiring to transform them immediately into personal performance, into accomplished work. Having but little learning for the most part, and being hardly aware of the merit of their productions, these are the men of action, potent creators, those whose names will always be associated with literature or discovery in science: they are the incarnation of fertile force.

Critics make an intermediate place for themselves. No doubt they enter into 'action' since they write and

publish; but theirs are above all *comprehending* minds, which on the whole receive more than they give back. They store up, compare, and comprehend the work of others; they derive opinions and form general ideas from it. Their manner of being intellectual places itself on a line above the hierarchy of the biological functions, and we have already learned something of the infirmities almost inseparable from that supremacy.

Now, the moralist is led to inquire of himself which of these different systems of work is least exhausting to the nervous system, and which is most consistent with a desirable state of health. What choice ought the mind-doctor to advise?

Theoretically, in order that the harmony of complete balance should exist, it would be necessary that the quantity and intensity of the nervous vibrations escaping from our brain should be sensibly equal to the quantity and intensity of the sensitive vibrations which are brought to it by reading and by external impressions. A crowd of these vibrations is not wholesome. The producer would then be the best-balanced man, the critic letting himself be overdone and consequently checked by an excess of learning, while the pure dilettante, the inactive scholar, overloads his brain without any compensation.

Practically, the following facts have been observed.

The *Journal des Goncourts* tells us that Michelet at thirty suffered incessantly from ailments of the stomach and from severe headaches. He was stuffed, so to speak, with learning, and he devoted all the time he did not pass in teaching, to reading; he had not yet thought of accomplishing a personal work, of projecting outside of himself

and fixing, for the pleasure of others, those visions by which his poet's brain magnified, transfigured, resuscitated the facts of our history. He derived no appreciable relief from a six weeks' stay in Italy. He then resolved to be no longer a reader, but to become a maker, of books. From the day on which his nervous apparatus became "motor" in the same degree as it had been "sensitive," so that he expended the nerve-power accumulated in him by reading, without taking count of it, he was cured of his headaches, and became a great writer all at once. Here is, I feel sure, the true interpretation of that little 'document' of literary history which may be summed up thus: Michelet, being exhausted by excess of learning found the only relief for such fatigue in cerebral activity.

I am in possession of other facts of like nature. I have already alluded to those active men who are never dull or irritable except on Sundays, when they suffer from headache, because they do no intellectual work on those days: an expenditure of muscular energy, an hour on the bicycle makes compensation and restores the balance.

It is certain that melancholy and the tendency to pessimism appear to be closely allied with the condition of exhaustion by excess of sensation. Brains which create are not thoroughly melancholy, however woeful the things they relate may sometimes be; we feel almost always that in them there is strength, invincible love of life, or some tenacious hope. No one would venture to place a character on the stage in which discouragement with life and creative power should be mingled, or to portray it in a novel. The Des Esseintes of Huysmans is the type of pessimism saturated with artistic sensations,

exhausted by too much learning, and incapable of getting into a railway train. The common error of men of that sort is to believe that they are worn out with fatigue, while a little personal exertion, by eliminating their excess of nervous vibration, would unburden and relieve them, would make them stronger, or lighter, which comes to the same thing. All minds which are over-fed, over-learned, and too plethoric, require to be greatly exerted; they must be always creating in order to recover their balance, to kill melancholy, a malady which frequently arises from excess in expenditure, but more often still from congestion, from excess of sensations, just as gout is a malady arising from excessive nutrition and insufficient elimination.

Here again, we may extend the formula used for mechanical problems to our ideas, and say: *pessimism, the sense that the sum of evil surpasses the sum of good, is to be met with habitually in the civilized man in direct proportion to the learned notions or the sensations of art accumulated in his brain, and in inverse proportion to the intellectual labour expended.*[1] Perhaps you were not wrong in asking us just now what kind of work ought to be preferred. The most modern physiology leads to the old motto: *Bonum est diffusum sui.* Happiness lies in activity, in the fact of getting outside of oneself.[2]

[1] There is no contradiction between this view and the ideas on melancholy set forth in the following chapter: melancholy appears to us to be allied to the state of exhaustion, including exhaustion by excess of sensation.

[2] In activity of moderate intensity, for all that is excessive, sensation or movement, is overwhelming to the frail, nervous system of man.

Expend yourself therefore, but not only in words. Beware of taking desire for action and meditation for performance. The mind is no more made for meditation than a ship is made for sailing on the sea. A ship is not made for sailing on the sea, but for carrying men, and things useful to the life of man, securely into port. Neither is the mind made to wander and stagnate in meditation, but to put actions or productions which are useful to the cerebral life of man to good purposes, that is to say, to the rendering of that life more lovely, or better or more lofty; these three words make but one.

CHAPTER VII.

MELANCHOLY AND ITS TREATMENT.

The study of emotion: W. James, Lange, Dumas, Ribot—The mental state of neurasthenic subjects—Experimental modifications of cerebral activity: the hierarchy of the emotions—Definition of sadness and of joy—Human sorrow; pessimism: Conclusion.

I.

THE study of the emotions is pursued with much zeal at present. It will soon be a quarter of a century since investigators set to work earnestly to trace the geography of the brain, and to delimit on the cortex of that little world the territories reserved for the various group of sensations and the acts to which they give rise. This work, but three-fourths accomplished, is suspended awhile that the history of those mind-countries, the variations of their activity, their indifference, their torpor and their incessant convulsions may be studied.

After ages of hesitation and occasional divagations, as it always happens, upon this wonderful subject,[1] the philosophers—or rather, the doctors, for it is they

[1] An exception should be made, however, of a few great minds, among others of Descartes, Malebranche, and Spinoza. Malebranche had the intuition of the psycho-physiologic mechanism, such as Lange began to conceive it towards 1895. Spinoza gave, in a short sentence of the *Ethica*, the very definition to which the latest data of experimental psychology lead.

who have taken this great step forward — at last endeavoured to learn exactly why we are downcast or joyous, how fear seizes hold of us and anger carries us away, why this man is sad and that man full of pride, why our thought sinks into indolence or irresistibly declares itself in ardent action, in written or spoken words.

Is not this a matter to interest all those who perceive the oscillations of their minds, and to captivate, not only the thoughtful, but also those who feel keenly, if it be presented to them as simplified psychology, as conclusive and practical as a physician's advice, and if what is said be novel ?

M. G. Dumas, who is one of Ribot's best pupils, and who is a doctor of medicine and professor of philosophy at the Collège Chaptal, has given us a remarkable work on Melancholy. He shows by the aid of sound medical observations taken from hypochondriacal or lipæmaniac patients, that the state of dejection comes from a state of fatigue or exhaustion of the nervous system, of which it is the mental reflex. This "affective" state, as technical language calls it, is nothing else than the vague consciousness of weakness, of powerlessness in our organism, of a diminution, permanent or passing, of the activity of our circulation, and consequently of our vital activity. If we lose some one whom we love, the profound dejection into which we are plunged is not the consequence of our grief, but its cause.

Let me explain this. The dread spectacle of death, or the telling of the fatal news, by our eyes or ears, by the optic or the auditory nerve, projects strong vibrations to our nerve centres ; and these vibrations themselves awaken

and rudely destroy notions so firmly fixed, associations of ideas so inveterate, habits of mind so rooted—that the brain is overwhelmed by them and over-wrought. Its vitality becomes exhausted and its tonicity is lessened. Thenceforward the circulation grows languid, respiration becomes weak, the muscles are relaxed and work feebly, and the nerves of sensibility carry to the brain from the whole body the continuous idea of weakness, failure, powerlessness; the mind becomes conscious of this, with a vague and confused consciousness, and that is called grief.

Grief is a special, a lower pitch of brain activity. The mind, if it stays there for a certain time, will form the habit, and henceforward everything will appear to it in a painful, melancholy, pessimistic light.

Melancholy is only a symptom of a disease of the vitality, an impoverishing of the circulation and a slackening of nutrition; such is the opinion of Lange, Ribot, and G. Dumas, and their teaching is generally considered as the first rational explanation of emotion that has been given. A single point seems to me to be open to objection—the predominance, and the primordial part assigned to the phenomena of the circulation of the blood, anæmia and congestion. But that is only one aspect of the question; the foundation of the doctrine is firmly established.

2.

When all these works of such great interest in theory came to my knowledge, I was led to compare them with the large number of facts of more striking precision and which had a more immediate practical bearing that my

profession has enabled me to observe, facts which had previously led me to conclusions analogous with those of these eminent psychologists.

Everyone nowadays knows the meaning of the word neurasthenia; it has passed into ordinary speech. Now it was the analysis of the symptoms and the treatment of that instructive neurosis, which first led me to apprehend and then clearly to understand the mechanism of our emotions, sadness and gladness in particular.

Notwithstanding certain moments of nervousness, excitement, tumultuous joy, or anger that flames up like straw, my neurasthenic friends, during the greater part of their life, are feeble and weary, have lowered vitality, sluggish digestion and little activity. At certain hours of the day, at the hours which follow their awaking or precede their meals, they can hardly stand upright, and the heart—an ingenious instrument [1] which may be compared to a manometer—sends pale blood but feebly to all the organs.[2]

Mental fatigue keeps even pace with this exhaustion of physical energy. To those who look closely, mind and body show the same oscillations toward strength and toward weakness. Neurasthenic subjects, those whose nervous system is exhausted, show a mental fatigue which, according to its degrees, is named disquiet, indecision, humility, indolence, fear, or melancholy. Having

[1] Verdin and Chéron's spring sphygmometer.

[2] Compare the very conclusive experiments of Dr. J. Chéron on weakness of the contraction of the heart, and on the lowering of blood pressure coinciding with the apparent diminution of the number of blood globules, caused by an actual dilution of the blood in neurasthenic and depressed subjects.

all the qualities of these defects, such subjects are habitually tender and pitiful towards other sufferers precisely because they long for tenderness and pity for themselves.

Observe these in comparison with nervous "hypersthenics"—those who have too much strength. You will find them overflowing with pride and self-content, violent and given to anger, and always on the point of exasperation; or else they are as brave as lions and as rapacious as beasts of prey; inaccessible to pity, because they have no need of pity for themselves.

Doubt, humility, indolence, fear, sadness, pity are symptoms, in different degrees, of cerebral exhaustion. Pride, fatuity, anger, egoism, courage, heroism and cruelty, are the ordinary manifestations of mental excitement.

It is easy to give a proof of this. Choose a man from one or other of the two classes. If he is depressed, give him a good tonic; give him sedatives if he is excited. You will see him assume a different mind, and literally be no longer the same man so long as he is under the influence of the drug. Every one knows that a little alcohol is enough to rouse the most languid and timorous brain to combative fury, exuberant fatuity, and even to the utmost brutality. On the other hand, strong doses of bromide will soon make the most extravagant madman dull, timid and passive. A moralist, more solicitous for the cure of suffering minds than for the enunciation of elegant maxims, ought firmly to establish as the starting point of his task the fundamental, elementary division of those minds into the too weak, the too strong, the irritated, and the depressed.

If a moral system is to have any meaning it must teach how to restore calm where storm has raged, beauty where disorder was. Now persons at the extremes of either strength or weakness are outside of harmony. The weak are perpetually tortured about themselves. Fear and sadness keep them on the rack, whereas the strong, too active, too conquering, devourers like Moloch—the type of the god of hypertension—almost unconsciously make all around them suffer.

This is the good work—"the present duty," the eternal duty, no longer in the state of vague aspiration but an exact formula—to fortify the exhausted, to strive to check the violence of the strong, to bring back these "excessives" into the medium zones.

Before my sentence is ended, I can hear objections arising from every side. But it is the dead level that you are proposing to us—a morality which suppresses every generous and spontaneous impulse of the soul and reproves all that is not mediocre and cold. It is the morality of indifference that you would impose on us, a sort of petty scientific Buddhism to which no free man would ever pledge himself.

But I have no such dark and foolish intentions.

Of course, half-way between excess of strength and excess of weakness, equidistant from paroxysm and absolute inactivity, a zone of indifference exists; this Kant regarded as a far-off ideal for Man, immobilized at last in pure idea, and henceforward inaccessible—except in the case of disease—to sadness and joy, to wrath and terror.

This too perfect balance, this indefinite straight line does

not seem to me desirable. Man without emotions would no longer have motives for action, nor would he desire to act. Realizing the old Buddhist desire, he would enter into final night, return to the immobility of the mineral kingdom, becoming his own statue. And this would indeed be the end of the world, since our senses would no longer perceive it.

I conclude that, in the actual state of humanity, only a few sublime and wild dreamers are capable of nihilism so radical. I am merely a doctor desirous to heal the sick; and I would not have the right, even if I had the liberty, to lead to nothingness those who might entrust themselves to me for the recovery of that lost vitality which they mourn.

Our therapeutics are more modest—we are content to look upon things in this wise:—

When our neuropaths have to be "put out to grass" we do not send them into a flat country, but to medium altitudes (500 to 1000 metres above the level of the sea); and so it is a slight degree of brain excitement, the elevation of vital energy, which gives them that sensation of strength, well-being, and lightness of body, that vivacity of sensations and movements which is called joy.

But here I must enter into some more positive explanations. The little clinical experiments which I am about to relate were repeated on different subjects a considerable number of times. Although they are the experiments of a doctor with his patient, without any trepanning of dogs, I think I may consider them strictly scientific and at least as valid as laboratory experiments.

3.

On an occasion when one of my servants was taking a holiday with her family, there came to my house to replace her an extraordinarily anæmic, thin, and weak woman. As her limbs gave way beneath her and almost refused to carry her, she asked me how she might recover her strength. Physically, she presented all the symptoms of neurasthenic depression and advanced anæmia: morally she was apathetic, sad as Bretons are when home-sick, timid and trembling at the least sound, full of the idea that she was in consumption, but gentle, submissive, incapable of a rude gesture or insolent word.

I gave her some preparations of iron, without success. After several days, I decided on giving her a subcutaneous transfusion of artificial serum, and I began with an exceptionally strong dose. I distinctly remember to have pronounced these words, which could not, I think, have suggested anything to her: "Perhaps this may give you a little tone, I am not very sure of it; for real cure I see nothing but a stay in the country—you must go back to your home."

An hour had not passed when I heard a strange noise in the house. I went to see what was going on, and found my anæmic servant, so timid, mild and feeble shortly before, strangely transformed. Her cheeks were aflame, her eyes shining, she spoke loudly and with angry gestures, she was breaking the dishes, slamming the doors, slanging the cook, tossing the baby about like a bundle, in short, behaving like a drunken fury. During the morning she had taken only a cup of milk, and I was forced to recognize that she was drunk with serum,

just as certain nervous persons are at times drunk with coffee.[1] Her nervous system, being very weak, was very irritable; and a dose of tonic, which to you or me would have been only slightly stimulating, quite set astray the nature of the poor girl, gave her another mind, and suddenly transported her from humility to pride—she persisted in talking to the cook of her personal dignity and of the importance of her family at Pontivy—from dejection to anger, from mildness to exasperation, and from powerlessness to act to the fiercest activity. You cannot imagine her day's expenditure in muscular contractions; she felt her body too light, about to lift her off the ground; she was impelled to action; and her usually low voice sounded like a trumpet.

Two days after, I had the curiosity to renew the attempt with a dose of serum one half less. This time my strange patient had no fit of anger, but only one of impatience and the nervousness which is revealed by tears, noisy laughter, need of constant motion, gesticulation, and loud speech, with no appreciable object but exhaustion of the excess of force accumulated by the brain.

Some days later the patient received a still more moderate dose of a less concentrated serum, and I obtained from it only a neutral state, without depression

[1] I have already published, in the *Bulletins de la Société de thérapeutique*, two other cases of intoxication by serum. The serum is nothing but salt water. It acts mechanically, and a phenomenon of the keenest physiological interest is found in this drunkenness produced by the friction of the sensitive nerves contained in the walls of the ducts through which the blood circulates. With care in beginning the treatment with moderate doses, artificial serum never causes such violent reaction. A considerable dose and also a subject of exceptional excitability are necessary to produce this phenomenon of drunkenness, which never appears in a cure methodically conducted.

of the mental faculties, but without animation; it was flat indifference—mediocrity. A last trial with a slightly increased dose had a more satisfactory result. My anæmic patient being duly tonified felt strong, calm, glad to be alive, pleased to be able to do her work. Under the influence of the dose, which exactly suited her, her countenance was quite radiant for ten hours, she was in good humour and active. Afterwards, the same dose produced almost always the same effect.

After thus groping about, after knocking at the door of anger, tears, enervation, and indifference by turns, at last I came to pleasure in life, happiness in action—to that, in short, which should be the most desirable state of the mind. I came upon it at that medium altitude which is above indifference and below anger and enervation. The cycle was complete. A poor anæmic servant, whose weak brain reacted easily, had revealed the hierarchy of human emotions to me and, so to speak, made me touch it with my finger.

This little clinical experiment acquires considerable importance and real scientific value from the fact that all stimulants of the nervous system act in the same way; when the dose is small they induce cheerfulness; when it is larger they lead to anger.

As for alcohol, it is common knowledge that a little wine or a little brandy cheers and strengthens, while a little *too much* irritates and makes us ill-tempered. Cafeine acts in like manner; cases of cafeine drunkenness have been noted. Again, simple mechanical means, the douche, massage, inhalations of oxygen, static electricity, hot baths may produce enervation. The air itself may

intoxicate, and I know nervous persons whom the simple act of eating heartily, although they drink water only, excites as too much wine might excite others.

It is impossible to doubt this, and suggestion has nothing to do with it. We are at present enabled to draw up a classification (of course very summary) and to make a synoptical table of the different degrees of cerebral activity and of the corresponding states of mind.

SYNOPTICAL TABLE OF THE DIFFERENT STATES OF CEREBRAL ACTIVITY.

Arterial pressure with the manometer.	Corresponding states of mind.
30, 29	Paroxysm, desire to kill.
28, 27, 26	Great fury, paroxysmal gestures and words, destruction of inanimate objects.
25	Anger.
24, 23, 22	Enervation, tears, aimless gestures and cries, utilized only to expend the excess of force accumulated in the nerve centres.
21, 20	Courage, stout-heartedness, pleasure in work.
19, 18	Noisy gaiety, cries of joy.
17, 16	Careless pleasure. Smiling.
15, 14	Zone of indifference.
13, 12, 11	Mildness, modesty. Shyness.
10, 9, 8	Melancholy. Fatigue.
7, 6	Indolence.
5, 4, 3, 2, 1	Fear. Terror.
0	Syncope, intellectual prostration.

This table cannot be re-read too often; notwithstanding its column of figures, it has no mathematical pretensions. It is a simple "schema," to allow the reader to see at a glance the series of mental conditions which arise or are dispelled within us according as the brain is excited or depressed.[1]

There is but one means of obtaining knowledge respecting the state of our nerve centres scientifically, that is by measuring the heart's power of contraction, and the pressure of blood in the vessels, and counting the red globules at the pulse of the radial artery. It may be stated generally that, in cases of exhaustion, arterial tension is low and the blood is diluted; in cases of excitement there is a considerable rise of the blood pressure, concentration of the blood and apparent increase of the number of the globules.

But this being so, we must not imagine that every man who has a pressure of 30 centimeters is necessarily meditating murder; between one man and another in similar mental conditions figures may vary widely. The

[1] Dr. Chéron has proved that in less than ten minutes a hypodermic injection of serum raises the pressure of blood in the arteries and produces an actual concentration of the blood. Under the influence of the reflex stimulation, the muscular sheath of the vessels is tightened, the calibre of the circulatory stem diminishes, water is driven out into the tissues which surround the arteries, and the red globules, diluted in a less quantity of liquids, appear much more numerous in the field of the microscope. At three different times I have repeated this experiment on patients of Professor Raymond's at La Salpêtrière; always with the same result. The same phenomenon of instantaneous hyper-globulism has been noted by Winternitz of Vienna, after the cold douche; by John Mitchell of New York, after general massage; by Professor Brouardel, after the injection of saline purgatives. The observations which these savants have published give additional weight to the experiment of Dr. Chéron, made several years ago. Can suggestion be in question after this?

only thing of importance is the hierarchy of the phenomena, and for my part, I am convinced that in the great majority of cases the heart's power of contraction and the tension of the arteries undergo parallel oscillations with those of the mind.

In the case of neurasthenic neuropaths, medical observations on whom have served as a basis for the present study, the pressure of 13 to 16 centimeters (mercury) generally corresponds to the defective equilibrium of the mental faculties. Below, is the zone of fatigue; above, the territory of cerebral excitement.

In the descending scale, we find successively gentleness, modesty, timidity, melancholy allied with fatigue, then indolence, habitual powerlessness to make effort, and at the very bottom fear, terror. These are the moral symptoms of cerebral exhaustion.

In the ascending scale the steps are reversed, first the zone of cheerfulness, smiling, radiant joy, noisy gaiety, nervous excitement, silly laughter, and tears are close at hand; then we find the zone of pride and the zone of anger, from its most temperate forms, courage and indignation, up to paroxysmal fury and a craving to destroy or inflict death—the final term of mental excitement.

Does it not seem that thus regarded, the study of the mind grows clear and is wonderfully simplified? The doctrine of "localizations," which is now established and classic, has taught us that, here and there in the cortex of the brain, exist specialized territories which receive this or that order of sensations, retain the remembrance of them, command various kinds of movements, make us see or hear, write or speak, stamp

with the foot, clench the fist, roll the eyes, and so forth. On the whole, what we call our intelligence is nothing but the sum of these sensations which have been received, of the associations which they form among themselves, and of the movements which they render possible.

And now the other face of the great problem reveals itself, and we come to know the variations of intensity of cerebral activity. According as all the sensitive and motor zones of the cortex of the human brain are well or ill nourished, according as the cells which constitute them are exhausted or irritated, our mind acts differently and assumes the aspect of the most various emotions.

As we can now conceive it, fear is nothing but a lowering of vitality, an exhaustion of muscular energy, which gives our mind a sense of irremediable inferiority and useless struggle. Courage, on the contrary, is a momentary increase of our forces, the unreasoned consciousness of an indomitable physical vigour, which makes us despise death or, rather, prevents us from even entertaining the idea. Courage is optimism, it is a mighty hope. With what lucid intuition M. Barrès enters into this state of mind, when he speaks of the Normans, the companions of William the Conqueror,—"whose vitality was so high that it prevented them from conceiving non-existence." To modern psychology, courage is only a degree of cerebral irritation, halfway between joy and anger.

We must also consider work and love of steady labour as excess of energy and the need for expending force. A nervous man who does not work is always irritable; he expends the vigour of mind which he possesses, and with

which he could have accomplished a work of some kind, in vain anger. Remember the peaceful pleasure given by the accomplishment of a task justly proportioned to our strength; good work disposes of nervous excess and fatigues us just enough to make us happy.

I have already had occasion to show that what men call indolence is only one of the most inevitable manifestations of nervous hypotension, of the abatement of nutrition. It is inability to act grown into habit. It is one of those "*aboulies*," maladies of the will, which, as M. Ribot has shown us, are inseparably connected with cerebral exhaustion.

4.

Coming back to melancholy and gladness, of which we seek to acquire a clear idea, may we not assign its exact place in the hierarchy of emotions to each henceforth?

We may say that sadness, even when it arises from moral pain, is only the consciousness of bodily depression, of the debility of our organs; the inseparable companion of the sense of exhaustion and physiological distress. Gladness is the first degree of excitement, that is of nervous stimulation. The experiment I have narrated shows that it must be placed immediately above the zone of indifference, below courage and indignation, on the border of the way which leads to anger. Every day careful observation of some new fact confirms me in this opinion which was already held by Lange.[1]

[1] The most superficial study of the expression of the feelings is enough to show (1) that when the muscles of the face are softened and relaxed, we are tired or sad; (2) that a higher tension, a slight tightening of these same muscles, is the sign of gladness; (3) that their strong contraction is the sign of fury.

It is not then in this or that circumstance exterior to ourselves that we must look for the immediate cause of gladness, but within ourselves. The events of our moral life being the same, we look at them with hope or despondency according to the point at which our vital activity is fixed at the moment.

I noticed one day a young man, evidently a Southerner and probably a neuropath, walking ahead of me in the street. Just then a heavy cloud hid the sun; and the young man went on with lowered head, dragging limbs, the look of one crushed by misfortune. A sudden wind swept away the cloud and restored the clear, strong sunshine. A few minutes sufficed to change Werther into a jovial, self-complacent, light-footed youth, and he did not seem to perceive the revulsion of mind which a ray of sunlight, kindling his nerve centres and raising his blood pressure, had produced so manifestly as to attract my attention.

Another observation is yet more conclusive. One of my neurasthenic patients, M. D., had pressing pecuniary troubles. He came to consult me one day when he was particularly distressed in mind; marked physical depression and extreme feebleness of pulse accompanied this mental dejection. As my patient was not to be reasoned with, I tried, without explanation, to rouse his courage by a strong subcutaneous injection of artificial serum and a smart shower of sparks from the static electric machine.

The next day he reported himself as follows:—

"Some minutes after leaving you, while still thinking persistently of my approaching terms of payment, I felt a curious alteration in myself coming on; my body was lighter; when going to your house I could hardly move

my legs, whereas then, on the contrary, I felt too strong. In spite of myself, in spite of my thoughts, I walked on at a brisk pace, and whistled lively airs. My body, which but now had been so heavy, moved to some gladsome rhythm; I still continued—at least, so I believe—to think sadly; but I soon found that my very ideas were changing irresistibly. Without any reasonable ground for hope I entertained the possibility of a fortunate solution. Optimism and gladness entered into me for some hours. It was long since they had visited me."

On many other occasions I have observed the same fact under similar conditions.[1]

In order to obtain the same result, to scale this height of excitement, a sunshiny peak of elation from whence the vale of misery is not visible, how many men poison themselves with alcohol, opium, ether, morphine, in this old world which thinks itself highly civilized and still uses the crudest means of attaining forgetfulness. "These artificial Paradises," as Baudelaire called them, with their shameful morrows of greater fatigue, the poisons which enslave and end by killing us are false friends procuring oblivion for us only by leading to stupor or fury, not honest means of healing minds in the condition of chronic distress into which hereditary neuropaths and those whose nervous system is exhausted fall.

Mankind must learn that without resorting to fallacious drugs men may lift up their minds to the enjoyment

[1] I need not to repeat that I have carefully guarded against the element of suggestion. It certainly plays no part in that series of therapeutic effects which have the rise of the blood pressure and the concentration of the blood, the subsidence of the red globules for their objective control.

of life, and even to hopefulness, by lawful processes, by having recourse to the natural springs of human force, by purely mechanical stimulation of our sensitive nerves. I have said elsewhere, and sufficiently proved, I believe, that sensibility is the mother of our strength; let us seek it wherever it is, in order to supply it with a new education, a "cultivation of the Ego," as Barrès would say, methodical stimulation, as doctors and physiologists say.

With precautions to avoid over-fatigue, give music to your acoustic nerves and massage to the nerves of your muscles, pleasant sights to your eyes, hair-glove friction and electric sparks to the nerves of your skin, fresh air to your lungs, serum to the blood-flow, a regimen to your stomach—and you will increase your strength, and by so much lessen your habitual low spirits.

The tonicity of your muscles being higher and your blood more concentrated, all your glands secreting more abundantly and appetite coming back, all your functions being exercised with more vitality, you will represent yourself to yourself as a strong active man, capable of overcoming almost any obstacle. You will profit by daily annoyances, you will want to act and to expend energy. Believe me, melancholy never exists together with such a degree of activity of mind.

5.

And now I beg that I may not be supposed to place earthly happiness, the end of human suffering, in Swedish massage or the douche. Human suffering has no end; neither the surgeon, the chemist, nor any pastor of souls

can prevent man from suffering, and were this otherwise, man ought not be kept from suffering, because it is, in fact, the only strong motive that individuals, as well as peoples, have for action and progress.

My own ambition has other aims. I profess to cure only a certain class of the mentally sick. I assert from having seen it a hundred times, that dull *ennui*, chronic dejection, causeless melancholy, the pessimist temperament, that tendency to see all things at their worst, to worry one's self perpetually, and to make one's surroundings wretched which is one of the most frequent mind maladies of the present day, may be cured by medicine.

Such a state is regularly accompanied by nervous exhaustion, by paralysis of the will and of voluntary attention, by inability to act efficiently; it is a disorder of the mind accompanied by waste of energy and vain suffering which shock the moralist and demand the doctor.

The therapeutic problem is therefore reduced to this: to find the best methodical stimulants for a given temperament; to ascertain by cautious tests the precise dose that will lend strength and cheerfulness for the moment to that nervous system; to begin by small doses in order to avoid over action or excitement; to multiply methodical stimulants so that their action may be added and superadded; to make the nervous system form the habit of remaining in a state of slight hypertension, even when the treatment is relinquished.[1] The cure effected, nervous tonicity has

[1] A remarkable experiment by M. François Franck shows that the nerve cell can mechanically form a habit, and reveals to us the secret of that invincible need of imitating and recommencing which lies deep in human nature. The description of this experiment will be found in Chapter X.

to suffice to itself and to stand alone, as an arch stands after its props have been withdrawn.

When the patient has acquired force sufficient to be irksome to him, so that he feels the need of restituting and expending it in action, then try to turn aside his fixed ideas by inspiring him with some ambition in proportion to his capacity, and by accustoming him to useful and regular work. Only then will you have cured him.

All this goes to prove the sovereign indifference of nature towards us. In sorrow we reproach her as the worst of stepmothers, and in joy we bless her as a benefactress, whereas pleasure and pain depend only on ourselves, on the manner in which our nerve centres react from vibrations from without, and on the intensity of that reaction.

It is our state of strength or fatigue, it is the degree of activity of our brain, which makes us regard this or that event as a grief or a joy, which leads us to esteem life now as the greatest of blessings, again as the most dismal of mystifications. We can calculate in figures, by the manometer, with precision which is only fair as yet, but will become mathematical in the future, what degree of nervous excitement a strong or desponding mind has reached; rational therapeutics enable us, in a few minutes, by a purely mechanical stimulation of the nerve centres, to substitute hope for depression, strength and the need of action for what Baudelaire called "la morne incuriosité." This is the experimental proof, as conclusive as can be desired, of the intuition of Spinoza when, in the middle of the seventeenth century, he defined the emotions as "corporal affections by which the energy of our

physical person is increased or diminished, pleased or afflicted, our ideas placing themselves at once in harmony with them."

What will pessimists say of this way of looking at things?

Perhaps they will hold that it rather discrowns their teaching and deprives the attitude that general good sense already too coarsely attributes to imperfect digestion of its poetry. Modern psychology, however, sets that attitude down to the account of an individual state of mind, to exhaustion of the nervous system, and this is not so different after all. Pessimists will not fail to reply that it has nothing to do with their philosophy, since, after all, man is melancholy, and that the world is very ill-made, since our brain, which alone reveals it to us, is so often constrained to take note of the universe only in a cruel and mournful light. Whatever we may say, doctrinaires always converge to their own doctrine. It would be puerile to seek to convert them otherwise than by proposing to adminster the treatment to them we have described.

We can neither be pessimists nor the contrary, we, who look on the outer world as simply a vast ocean of vibrations without either malignity or tenderness, who merely state that a certain form of melancholy, the most useless, the most evidently morbid, is curable. The treatment of melancholy depression exists; as a fact it is efficacious; and that it is so we may well rejoice.

Let us not forget that the noblest poetry is born of pain, that human suffering has given us pity and affection, and that grief has often compelled us to high thoughts or

to salutary action. But let us also remember that the brain of man perceives differences only, and that a joy which ended not would remain all unperceived. It is when it begins to come or ceases to be that we taste our happiness. And I understand the knight Tannhauser, to whom the perpetual delights of the Venusberg bring only weariness after a while, and who wants to go away to suffer and labour like the others.

CHAPTER VIII.

THE PASSIONS AND MEDICINE.

The intoxication of love—Jealousy as a phenomenon—Midnight jealousy—Flirtation and Platonic love—Therapeutics of love.

I.

CLEVER people who are surprised to perceive that the doctor is becoming of more importance, and taking a larger place in the society of the time, reproach us with meddling too much in everything day by day.

On the contrary, I am inclined to think—this book proves it—that the doctor has not yet meddled with a sufficient number of things, and that he ought not to leave to novelists the vast domain of maladies of the mind. No doubt those writers have great ability, their knowledge of the human heart fills me with admiration; but they are open to the reproach of turning too constantly in the same circle, and too rarely departing from the tragic or comic, superficial or detailed, austere or voluptuous, poetic or philosophic story of inevitable adultery.

We would take another view of love, and make a more positive science of the study of it, and a sort of didactic pathology of the heart as the vital organ of feeling; that pathology to comprise, like the other, analysis of causes,

the pathogeny or interpretation of the morbid mechanism, symptoms, diagnosis, prognosis, and treatment; for the end we aim at is the cure of those who suffer.

An example will easily explain my idea, and show that it is not simply paradoxical.

Consider the phenomenon of sentimental love. Sometimes its evolution is healthy; often it is pathological. Every time it is said of a man, "he is madly in love, hopelessly in love, a platonic lover"—these expressions designate a person attacked by an "affection," a malady of the mind which passes for being "cruel," and, by universal consent, is reckoned amongst the most distressing.

Ever since poets have existed, they have sung this passion of love in every key, and described every aspect of it; but I know only two great novelists who have sought to determine the nature of the evil, to grasp its mechanism, to write its pathogeny.[1]

[1] On the other hand, philosophers have treated the subject at length, and each one has given his own more or less abstract definition of the passion. It may be useful to enumerate a few of these theories.

According to Bain, love is a tender emotion complicated with several secondary feelings.

According to Schopenhauer, love is only a manifestation of the sexual instinct developed by the "Inconscient" until it becomes irresistible.

Hartmann, the intellectual son of Schopenhauer, has contented himself with pushing the doctrine of the latter to its extreme, and even magnifying the part assigned to that mysterious and somewhat artificial entity which both he and his master call the Inconscient.

M. Pierre Janet expressly identifies love with disease. It is born within us at a moment of depression and nervous exhaustion, and its evolution takes place after the manner of psychoses, diseases of the mind.

M. Gaston Danville, in a little volume of the *Bibliothèque de la philosophie contemporaine*, discusses the doctrines of preceding

Stendahl compared the "*coup de foudre*" to the physical phenomenon of instantaneous crystallization. The saying has become famous, I scarcely know why—for it is obvious enough, and the great Beyle has said better things.

But Alphonse Daudet has described morbid love and revealed its mechanism with marvellous accuracy and exactness almost scientific. In his *Sapho* the hero falls in love with a woman unworthy to be his companion. At first she is merely pleasing to him, but the charm works slowly; he grows accustomed to her presence, and she becomes necessary to him. He despises himself, he despises her; they quarrel constantly. But the chain is riveted, he can no longer live without her; and, to get back this woman, who literally poisons his life, he gradually becomes capable of every kind of baseness, and sinks to the lowest degradation.

Observation of the effects of alcohol and morphine will enable any one to perceive the absolute identity of the pathologic process.

To be morbidly in love means that the "subject" cannot live away from the person beloved, suffers in absence, and is at each parting more in love than before,

teachers, and holds love to be a physiological, and not at all a pathological state.

In his *Psychological Paradoxes*, Max Nordau adopts the theory of Schopenhauer and Hartmann, amplified by the idea that each one of us is urged to realize an innermost ideal which we have without knowing it.

Finally, Professor Grasset (of Montpellier), in his charming little work, *Un Médecin de l'Amour au temps de Marivaux* (G. Masson, publisher), comparing the teaching of Bossier de Sauvages with that of modern psychologists, distinctly states his belief that love, habitually physiological, becomes morbid whenever it is developed on neuropathic ground, in a man whose nervous system is ailing. This is the very doctrine which I have maintained for years.

more intoxicated than ever. Just so the morphino-maniac cannot live without his beloved drug, he finds peace in it only, and becomes more and more ill the oftener he resorts to it. The degradation of the will, the progressive degeneracy, the vicious circle, are the same in both cases.

Hence, first conclusion: certain moral maladies are evolved in a manner exactly comparable with the maladies that form the subject of our medical studies. Sentimental love ought to be ranked among "Passional Intoxications," on the same score as alcoholism and the ether, morphine, cocaine, and other manias.

Is it a strange paradox to liken love to a poison! Love —the noblest thing on this earth, the excuse for living, the reason of our being here below, love which gives us birth, and perpetuates us, holy love, the source of all happiness.

Let me explain.

There is good wine, which aids the action of the mind: there is bad alcohol, which produces ferocity and brutality. Do you not believe that there may be two kinds of love? I do not mean the platonic and the carnal, for I know not a distinction more purely artificial. There are two loves otherwise unlike: one is happy, alert, and healthy, it knows not regret or bitterness, the young and beautiful love which gives life its charm and is our recompense; the other melancholy, plaintive, morbid, nearer to tears than to laughter. This latter makes men dull and stupid (I speak of men only) and makes them suffer severely. Now this sentimental malady is extremely frequent, whatever may be said, in this age of flirtation, when women boast

of being *allumeuses*. It is always good to love. To be in love is quite another thing.

The state of being in love, whether passionately or platonically, but especially platonically—rest assured of that—with its delusion, blindness, blundering and melancholy, is, beyond any doubt, a condition of mental poisoning quite comparable with the other intoxications called voluntary. This poison belongs neither to mineral nor to organic chemistry; it belongs to psychology, but all the same it is a poison and it acts like a poison. Whether it be alcohol, ether, opium, tobacco, haschisch, morphine, or cocaine that is taken, the effects on our faculties, more or less violent, are identical. In the case of love, sentimental passion, there is the same evolution and there are the same results.

Now, to demonstrate the truth of this.

First, let us consider the behaviour of the wilfully intoxicated from the medical point of view—the victims of alcohol or morphine, the opium smoker in China, or the tobacco smoker in Paris.

They generally begin without enthusiasm. Tobacco causes nausea, morphine provokes vomiting, and the first time too much strong drink is taken the ensuing headache is not pleasant. The ardour of the neophyte is cooled. And yet it is said to be so good! He goes back to it from curiosity or because he has nothing else to do, or to be like others. He does not like it yet, but he endures it better: it is not so bad as he thought.

Gradually, the charm operates. Alcohol puts him into good spirits, morphine soothes and gives exquisite beatitude, smoking aids reverie and facilitates work: they

are not indeed productive of actual pleasure, but they just give one delightful indolence, a sense of being irresponsible and of yielding to something stronger than one's own will. And then—once is not a habit. One can stop when one pleases.

Now comes some intruder, who is sure to say,—

"Take care, my friend, you know to what this may lead!"

He is answered by a shrug of the shoulders. As if his friend were a man to allow himself to be overcome! From that day the victim takes to evasion. He smokes in corners, uses the morphia syringe on the sly, and drinks when nobody is nigh. He cunningly avoids the givers of good counsel, troublesome people who do not understand him and meddle with what is none of their business. Has he not a will of his own? To-morrow he has only to will, and the thing is stopped.

And so the habit is established: now habit is nothing else than the sickness of the atrophied, paralyzed will, incapable of reaction. At first, indeed, what is the use of making such an effort? The man has all the pleasure and, as yet, experiences no inconvenience. He only separates himself from others, loses his activity, becomes a stay-at-home and a dreamer. But how sweet is that dreaming, and how pleasant it is, far from rough men, to have beside one a faithful friend, a comforter always at hand, the good pipe, the bottle, or the Pravaz syringe, that pretty little silver syringe lying between its two needles of bright steel!

But the time will come when yesterday's dose will not do for to-day. To reach the point of intoxication, the

delightful moment of forgetfulness, more must be taken, and every day a little more. There is no going back.

The victim becomes a little uneasy. He decides on giving up his beloved habit—but not to-day—to-morrow; he puts it off from day to day. But when the moment for decision arrives, his courage fails, the will exists no longer. After the cowardly yielding comes remorse and the hope, the certainty, that to-morrow he will be stronger. He never is stronger to-morrow. And the poison becomes the great, the only necessity of existence. Away from it and without it, he is good for nothing. To eat, to sleep, to think, to work, to be himself, he must smoke, or drink, or take his morphine. Without one of these his mind wanders, it is impossible for him to fix his attention, he is stupefied, torpid, benumbed. Only the poison gives him the stimulant he needs, and each day he must have a stronger dose to obtain a stimulation which is each day more transient.

Meanwhile he is becoming thin, pale and dejected. He is prone to tears and quick to quarrel. His fixed idea dominates everything. He is at odds with life and with his kind. Memory is failing, the mind is no longer clear, the body is weak and he ages fast. He no longer sleeps, no longer lives, he only drowses; he only vegetates.

In this phase, if you try to wean the victim of intoxication from his poison, you will make him seriously ill. The smoker, without his cigarette, is only nervous and irritable; the drunkard, deprived of his alcohol, has *delirium tremens*, hallucinations, fits of fury and actual madness. As for the poor morphinomaniacs, they weep, beseech, howl for their beloved morphine; they go down

on their knees, and with clasped hands implore you to give it; they will shrink from no humiliation.

And it ends dismally—in death at the hospital, in suicide, or the madhouse.

The remedy? There is no remedy but isolation, shutting up the sufferer in a *maison de santé*, away from parents and friends, under the care of a doctor who regulates the dose and diminishes it by degrees. The treatment is severe and lasts long. With isolation and their douche, doctors can reconstruct a will. The victim comes back to the world cured—and begins again, oftener than not, six months later!

Now take the case of a man in love, and see if it is not almost the same thing. No matter whether it is a settled flirtation with a society woman, or the *liaison* of Jean Gaussin with Sapho, you will find all the phases of voluntary intoxication as we have just described them in succession.

In the first instance "he" may not think "her" wonderfully pretty, and her conversation may not enchant him. He is even astonished that she should be so much admired, that others have ruined themselves for her sake. A little later on, chance throws them together. He talks with her again, from curiosity, or because he has nothing else to do, or because others talk with her. So far there is no intoxication, but they like each other better. She is coquettish, she is amiable, not so stupid, indeed, and prettier than he thought.

Gradually the charm works. An intimacy, progressive and jealous, unites them. They see each other regularly—the habit is formed.

Now comes on the scene an intruder, who is sure to say:—

"Take care, my friend, nothing so unfits a man as flirtation, nothing is worse than an infatuation; you know what this may lead to!"

He is answered by a shrug of the shoulders. As if a man would allow himself to be taken in seriously!

From that time on—but I can only repeat, word for word, what I have said before. The words of Emile Augier, set to music by Gounod, apply as well to the Pravaz syringe as to the woman who dominates you:

"Elles me viennent d'où ma vie
Pend désormais,
De celle-là pour qui j'oublie
Ceux que j'aimais!"

Yes, it is delightful at first. And the man dreams of it when he is alone. Minute by minute, he lives over again the hours passed with "her"; he is hypnotized by the remembrance of one of her gestures or one of her looks. He becomes a stay-at-home, a dreamer, inactive, depressed, a monomaniac. He suffers when away from her, he misses her terribly. He must see her daily, and each time he sees her he goes away rather more ill and more infatuated by her. He would like to break with her; he is afraid; would there were an end of it! Let him try, if he can!

He has no existence away from her, and he cries for her adored presence, not so noisily as the morphinomaniac, because he is ashamed, but pitiably all the same. Meanwhile, he grows pale and thin and downcast. He is prone to tears, and quick to quarrel. His fixed idea dominates

everything. He does not sleep, and he becomes languid. I tell you, it is the same thing!

It is too late to break off, or else the separation is unspeakably painful. Read once more the death of little Alice Doré in *Sapho*, and the heart-rending scene of farewell in the wood of Chaville. Medically, it is the same thing. Fanny Legrand is literally the "voluntary intoxication" of Jean Gaussin.[1]

A characteristic of the state of being in love and equally of the state of being alcoholic or morphinomaniac, is the pain of living without the beloved object, the increase of the evil after each meeting, after each absorption of the poison; it is the vicious circle: suffering appeased only by a satisfaction which keeps it alive and increases it immediately afterwards. In all these cases the same diminution of lucidity of mind, the same weakness and the same subterfuges are found.

It comes to a different end, however, in the majority of cases. It is true that men become ruined and insane, that there are murders and suicides, because of love; but the proportion, luckily, is very small, considering the number of lovers in the world.

Morbid love may generally be cured. A journey, some important event in life, or merely the ennui of monotony, constitutes an efficacious treatment very often. Separation and distance are also excellent remedies; and I see no objection to the addition of the douche.

Of course, the first days of separation are cruel; the

[1] "Voluntary intoxication" is the received expression, but it is hardly necessary to point out how inappropriate it is. The deplorable habits formed by nervous people are evidently the result of infirmity of the will.

old love springs up and protests more loudly than ever. But time soothes and heals, and, later on, leaves both sweet and bitter memories.

Moreover, when a man is cured, it often happens that he begins over again, in six months' time or sooner yet, with some other enchantress, rarely with the same.

Since, then, I have used the same words appropriately and stated the same facts concerning both morphia and love, sentimental love is decidedly of the same order —causes, beginning, symptoms, progress, termination, diagnosis and treatment—as the voluntary intoxications described by doctors.

Only, among these poisons, love is one of the mildest, and its noxious action is most easily repressed.

From the point of view of the gravity of the peril, I propose the following classification :—

(1) Alcohol, which makes so many criminals and inflicts such terrible heredity.

(2) Opium and Haschisch, of which we know less, but which are also very formidable. (It is said that the word "assassin" is derived from "haschischin.")

(3) Morphine, Cocaine, and Ether, which frequently produce insanity.

(4) Tobacco, which many persons use without suffering sensibly from it. It is enough that it injures the memory, and obscures the intellect. Death does not ensue from it, except by *angina pectoris*, or smoker's cancer, and the number of such cases is not large.

(5) Love, at the very foot of the ladder, less mischievous than the others, and less irremediable if no less cruel, since the man almost always grows weary, the worst

coquettes have only a few suicides to boast of, and the suicides and duels for the most part are "au premier sang."

2.

Let us now briefly consider the phenomenon Jealousy, that which constitutes the truly painful, truly morbid part of the complex condition called love.

In the last chapter of *Les Martyrs*, Châteaubriand says that jealousy is most certainly inseparable from true love. I am not quite convinced of this; I believe that there are here and there healthily constituted persons who are capable of infinite love without suffering the torments of doubt. Surely love and entire trust ought to exist together. But let the lover be a neuropath, an enthusiast, or merely a person of a romantic turn of mind endowed with a lively imagination, and he will inevitably be prone to jealousy. And it may be that the most readily inclined to suspicion are themselves the most vicious and capable of deception. We conceive only such things as we ourselves would be capable of, and it is a habit of our mind to recognize its own bent in others.

The word "jealous" does not seem to me to have its full meaning or its full horror when it is applied to a betrayed husband whose wife has left him; he is a man who suffers in his publicly humiliated pride, or who mourns a familiar presence lost. The truly jealous man is not he who knows, for knowing is a relief; and the hope of suffering less some day, whispers words of comfort even before we dare to avow it to ourselves.

The jealous man is he who doubts, he that will never completely despair or be completely reassured; his mind

is never at rest, but torments him, and torments others; it is always full of distrust, seeking pretexts for its misery, inventing them rather than not have any. Of all our contemporary novelists Bourget, I think, has "seen" this sick mind most clearly; in *Cosmopolis* and in *Terre promise* he has portrayed it impressively.

This sort of jealous man frequents mind-doctors; he is very often a neuropath by heredity, seeking for cure of the neurasthenia which oppresses him or the hypochondria that lies in wait for him. Very often, of his own accord, he accuses some love trouble of being the cause of his neurosis. As wine to the predestined victims of alcoholism, so love, which is the joy of life, has been to him a poison. At moments, when his fixed idea loses its hold, he is quite aware that, if he is jealous, it is not so much the fault of the coquette to whom he is devoted, as the fault of his own brain which cannot trust and makes him believe himself injured.

Let us study such a patient, going back to the sources of the evil, as we should in a case of neurosis.

We shall see at once that our typical lover belongs, in the great majority of cases, to the class of those whose nervous system is depressed, or, as they say nowadays, "hypotension invalids." No doubt he is not always weak. He has fits of anger and moments of fury when he is to be feared. These are paroxysms which may lead to murder; but they are brief episodes, accidental, momentary reactions of a weak brain, the irritability of anæmia.

Considered attentively, the jealous person is not merely an egotist, occupied with his hypertrophied Self beyond everything else; he is also timid and humble. Consider

the coxcomb at the other end of the scale. He is not jealous; he is far too sure of himself, to fear deception—no other could possibly be preferred to *him*. The timid lover, on the contrary, sees a rival more captivating than himself in the first-comer, and imagines that every other man must want to take such a treasure as his lady-love from him. Him we can pity, but the coxcomb only makes us laugh.

Remark, too, that man's passions bear resemblance to forms of madness.[1] Fear of being deceived, inability to believe and trust, fits of suspicion and revengeful anger are attendant upon the mania of persecution, as well as on excessive jealousy. The fatuity of the coxcomb is likewise the mania of grandeur on a small scale.

On farther examination of a patient whose malady is love, we shall almost always find that some cause of depression, or some overstrained feeling, intellectual or physical, has preceded the attack.

On recovery from illness, or after the loss of some dear one, or as a consequence of some deep mortification, the harmful passion is apt to declare itself. Influenza with its consequent weakness makes many jealous lovers. An ill-nourished brain and debilitated mind easily fall victims to the intoxication of love. I possess singularly instructive statistics on this point.

Yet another result of observation is of capital importance. A jealous man is not always equally jealous. On certain days and at certain hours his passion slumbers

[1] There are, in fact, many different kinds of madness. The mania of persecution is at one pole, that of grandeur is at the other.

and moral health comes back to him. In the intervals when he is trustful, he is undoubtedly a very amiable and attractive man, were it otherwise no woman would put up with him for a week. Nothing is more instructive than these ups and downs of cerebral activity, these oscillations of tension of the mind. If you study the paroxysms, you see that passion rises or subsides under the influence of conditions which are entirely physical.

The evil spells come on oftenest :—

At a change of weather, on days of storm, or, in winter, when snow is coming.

When the lover has drank exciting liquids or eaten food liable to ferment in the stomach; when he has slept badly; when he has had nightmare, and especially when he has dreamed of things tending to arouse his jealousy or to strengthen his fixed idea.

When the stomach is empty and the brain in a state of anæmia, in the morning on awaking, at the moment which immediately precedes meals, or at the gloomy hour of nightfall, jealous persons are more apt to give way to their infirmity. Too long a walk, over-fatigue from any cause will make them nervous and ill-tempered. On the other hand, a moderate meal, or a few moments' repose on a sofa, away from light and noise, brings them quietness and strength to restrain these impulses for a time.

But you will ask me is it not strange and sad thus to strip the crown from passion and deprive it of all its spiritual quality, to learn that its cause is only a defective state of the circulation, irregular oscillations of blood pressure in the brain!

True, yet it is a welcome task, for it inspires good

hope when the cost is counted; for the more the moral nature is subjected to the influence of the physical, the better chance we have of reaching and healing it. The commonplace has its comforting side, it shows on what mean and prosaic conditions the paroxysms and intermittences of that most tragic and romantic of human passions—the anger of love, depends. It does not merely humiliate the patient; it also promises him a doctor. Do you not perceive from what has been laid down the possibility of therapeutics for the mind, a practical morality logically deduced from psychology. If, as I believe, jealousy has for its prime cause defective nutrition of the nerve centres, on which evil habits of cerebral activity have been grafted, we shall be able to treat it by soothing the painful element, attenuating its destructive effects by a curative system—on condition that the patient suffers enough to wish ardently to be cured.

The restoring of tone to a sufferer so as to make of him a man conscious of his strength will at once suppress his excessive humility, and all that doubting of self which lies at the root of jealousy. Since the brain is poisoned and irritated by digestive troubles, why not remove them by an appropriate food regimen? Certain lovers intoxicate each other as with wine that is too strong, and their state of jealous irritation is in direct ratio with the frequency of their meetings. Why not prevent their meeting too often, as we regulate doses of morphia? And lastly, why should they not be induced to diversify the fixed idea by some manual or intellectual work, to employ their nerves and their superfluous strength in some other occupation than anger and tears.

I willingly admit that such a "morale" is very slight and only moderately useful; but more than one has been glad to have recourse to it. Bourget laughs at us, poor doctors, for meddling with medicine for the mind. He accuses us, as we have seen, of "always wanting to substitute a pill-box for the Gospel." But why should not the pill-box come to the aid of the Gospel? Then there are some (and their number is said to be increasing) to whom the Gospel is but a beautiful poem; who no longer have faith. Must they therefore do without a moral system, and suffer uncared for? I do not think so, and I consider that we ought to turn our recently acquired knowledge concerning the mechanism of love to advantage by endeavouring to comfort those tormented beings who long for relief.

4.

If we look at love from the point of physiology or of naturalist philosophy, platonic love will surely appear to us the most harmful as it is the most immoral.

Alexandre Dumas the younger said,—"Love is purely physical." This was wisdom. Coquettes, as they used to say, *allumeuses* as they say nowadays, will not admit that physiological truth, and act against the laws of nature. I will give an example which is better than argument.

I had a patient, a man of thirty-one, whose intelligence almost amounted to great talent, but who was neuropathic almost to the point of *grande hystérie*. His nervous malady, which dated far back (from his paternal grandmother), had greatly increased since he had become the platonic lover of a woman who was more wealthy, more elegant, and less easy of approach, than previous

objects of his fancy. My patient kept nothing secret from his doctor; I was a witness to the development of his passion. It had, from the first, a romantic intensity, that half-mad or "mattoid" aspect, as Lombroso says, which impresses us so painfully and depressingly in reading *Werther*, *Antony*, certain pages of George Sand, *Fanny*, *l'Arlésienne*, and Daudet's *Sapho*, the incomparable *Notre Cœur* of Maupassant, and Bourget's studies of jealousy, so accurate from the medical point of view.

I could remedy the case only by studying it very closely, and from the beginning I noted the following dominant fact:—

Each time my patient saw his beloved, it seemed that physical force entered into him. His brain was excited, he spoke freely and gesticulated more vehemently than was his custom. There was a distinct increase of energy. His hand was more vigorous and grasped the dynamometer more strongly. The strength of the heart contractions, which I registered daily, rose progressively.

His character was modified in the same way. He was always tired, he scarcely slept; and frequently had nightmare. He was incapable of settled work, and strangely irritable. The promptness of his anger at anything or nothing became surprising; and the more he saw the woman the more irritable he became with everybody, but especially with her. A *tête-à-tête* always turned to a quarrel. He was jealous on every pretext, and she would give up nothing or next to nothing for the man whom, however, she intended to keep as a slave to her charms. It was the onward march to insanity.

After these scenes, he would come and tell me that

he felt madness stealing upon him, a malign madness which terrified the good fellow, whose disposition was naturally mild and gentle.

Why not apply the process of demonstration which is so much used in the natural sciences to the study of such passions? It consists in substituting the precision of a graphic construction for words which are never very exact. As we trace the curve of typhoid, so may we trace the curve of passion fever.

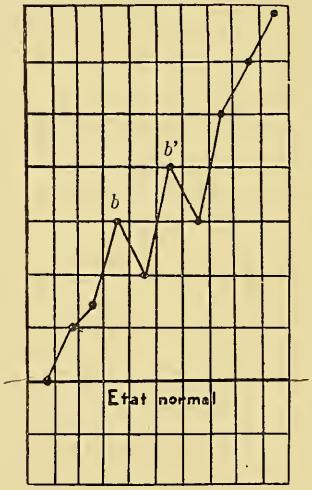

Fig. 12.

The accompanying diagram does not offer mathematical precision, but the exact and general idea of the nervous excitement which was caused by love in the case in point. The heavy horizontal line marks the normal equilibrium of nerve power. The zone situated below it is the region of fatigue or vital hypotension; all the upper part is the region of vital hypertension.

Every time the lover saw his platonic friend, his strength was increased and the excitement grew, and he was more and more thrown off his moral balance. Twice at *b* and *b'*—the patient made an effort to break off, to go back to his work, to tear himself away from his fixed idea and mental obsession. Each time the curve was lowered, with a tendency to return to the normal. But this return to voluntary energy did not last long, and the coquette reconquered her wooer. The curve of nervous irritation at once mounted up again; the game was becoming dangerous. The fixed idea had such possession of him, his attention was so exclusively specialized on the image of that woman, that it was materially impossible to divert it from her. I saw but one means—to summon the lady, to whom I was not altogether unknown, and to show her clearly the danger.

She came, all smiles, rather shy, and yet more pleased than troubled by the little mystery of the rendezvous and the attraction of a confidence.

"I like him very much," she said, "but all men are alike. They pretend to suffer just to make sure of our pity and to lead us quicker to evil, after which they abandon us. As for me I will neither—blunder—nor be jilted, and believe me, my system is the good one—such hurts are not grave!"

She candidly explained her notion. There should be many flirtations and no lovers. To win love, to enjoy the gentle intoxication of men's adoration, to draw after her, until old age comes on, a whole procession of lovers—this was true wisdom, virtue without a dull life, and much pleasure without any remorse. "I'm an *allumeuse*, yes!

Z——, who is the least lachrymose of my 'flirts,' says so!"

I tried to make her understand that the neuropath in love is more dangerous because of his mental state. He has lost control of his will, his passion is unbalanced, it is a progressive approach to madness. I explained the matter plainly to her, and concluded by saying,—

"One of two things—either M. X. is not a neuropath, and this is not possible, for then he would not be in love with you as he is—or he is more or less a neuropath, and you are going to unsettle his mind finally.

"This man sees only you; he is haunted by a fixed idea; he is simply on the way to suicide or murder. In short, nothing is so dangerous as the coquetry of women, and nothing so profoundly immoral as platonic love."

It seemed to her that I was expounding a doctrine at once very gross and very scandalous. However, she made sundry avowals which confirmed what I had said. She admitted that her "flirt," as she persisted in calling him, had several times had terrible fits of anger. He had twenty times threatened to kill himself; and once, in a jealous fit, he had struck her, while his eyes "were like a madman's."

Pursuing my plan of making the abstract concrete and of representing the immaterial by images, I took a "temperature leaf" from my medical memoranda and traced the accompanying curve for her (figure 13).

As in the preceding figure, the heavy horizontal line E.N. represents the state of normal balance. The inferior zone, or zone of fatigue, has for its extreme limit the total exhaustion of strength, powerlessness to act. The upper

region—that of excitement—ends at a highest point where excitement is so strong that an act of destruction only can subdue it. The fixed idea, mental obsession without diversion, has produced a tension that nothing can relieve except murder, either suicide or the suppression of the besetting image—the murder of the beloved.

This paroxysm had been all but reached on one

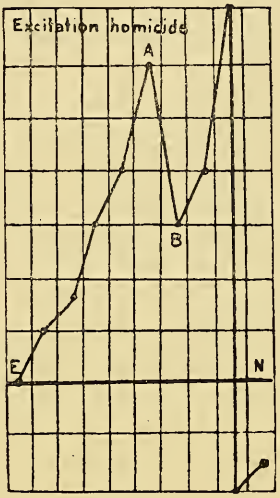

Fig. 13.

occasion in the case in point, the man wanted to kill himself and he threatened the woman he adored. He was afraid of himself and for ten days fled her sight. The curve fell by so much, down to B. But he came back and was now hastening to irreparable disaster, toward the culminating point where he would not stop at threats, but would use his revolver, doubtless on himself. "And yet, Madame," I said, "if he succeeds

in irritating your nerves in unison with his own (which would not be at all surprising), the revolver may be for you. Neuropaths attract and excite each other, as my old friend Dr. Blanche has proved. Only, if he kills you first, he will do like others of his kind, he will not succeed in killing himself, and disgrace will follow murder."

The young woman was startled and convinced at last; she gave all her little mind to what I had said, she concentrated the attention of which her little soul was capable. This time she understood why so many poets have heaped curses on coquettes—*allumeuses*—and why Orientals, through fear of love, have taken the short cut by simply making slaves of women. She concluded that it was her duty either to fly or to yield. I believe she did not sacrifice the man who loved her (literally) to madness to her theory of freedom.

Doubtless this is a hard and pedagogic explanation of the most fanciful and enchanting phenomenon of life; the most dear to fancy, and it takes us far from the antique symbol,—the naked child, the young Eros with blindfolded eyes and keen arrows, son of the fair Astarte! But I think the method has the merit of being novel, clear, and fairly persuasive. It explains very many things: how death can be born of love, and hatred of tenderness; it interprets and renders intelligible many a drama of passion.

Perhaps this very modern psychology, which has been taken up by a few doctors, contains a morality, a practical philosophy, that is really consonant with the needs of the time. Who knows but the twentieth century

may rewrite *Werther* in its own way, with figures in the text, as a medical publication.

Let us close this physiological analysis of flirtation, love, and jealousy, by trying to arrive at some practical result, some useful solution, a system of cure for the morbid forms of passion.

If the phenomena of passion can really be reduced to simple problems of cerebral mechanics, they are henceforth, so to speak, within our reach: we can do something against them.

Though often difficult to put in practice, this rational treatment is easy to conceive. Love being an intoxication by an image, the first needful thing is evidently the suppression of the poison, that is, breaking off with the object of passion. But, just as with the morphinomaniac in the sudden privation of his favourite drug, so with the man in love, to keep him from seeing his loved one will make him worse; the break must not be sudden. Travel is an old resource, but it is very radical, absolute, and sudden. Lovers, like morphinomaniacs, should be treated by gradual disuse and separation, and by tonics for the nervous system when the will is too much affected by habit to react of itself.

I had as a patient and friend a writer who was all the more attractive that he was a little mad in the ordinary routine of life. He fell in love with a lady in society and he adored her for half a year. She would have certainly continued to love him if he had not spoiled everything by his extreme jealousy. As he tormented her continually with his suspicions and doubts, she broke with him, and he believed himself to

be going mad. He tried a journey, but turned back. Like a worn-out spring, his will would no longer act. He became aware of this, and unable to endure his condition, he adjured me to save him, to give him back his strength of mind at any cost. He so nearly resembled a morphinomaniac who is resolved to be cured, that the idea occurred to me of trying a treatment of isolation, and tonics for the nervous system, the only effective treatment of intoxication of the passions.

He hesitated for ten days, and then, after a frightful scene, he yielded to me at discretion.

I sent him to a hydropathic establishment at Auteuil, where my friend Beni-Bade was at that time director. It was an open house to which the patients were not committed by law. But I got my patient to sign a duplicate agreement, on stamped paper, not to leave the house without my express leave. The agreement was void in law, but it was enough to make an impression on him. I was careful to regulate all the hours of his day, and I multiplied tonics. He promised to work two hours every day; but I forbade him to write about his passion or even to speak of it; words and writing generally increase the evil.

I asked the lady to assist my little stratagem. As morphine is given in doses, so I dosed this man with the woman. The first week he went to see her every other day; the second week he saw her twice, the third on her reception day at five o'clock only, in the presence of others. Then, without warning, I stopped his going out and kept him as though in prison, until his cure was complete.

At first it was terrible. He cried, struggled, reproached me furiously, declared he would apply to the police and have me shut up in my turn for violation of liberty of the person; he implored, wept, tried all sorts of tricks, suffered a thousand torments. But two good infirmarians kept close watch over him, and, at length, he was quieted.

But still the idea that he was never to see her again seemed impossible. He tried cunning, protested that he was cured, but I was firm, being convinced that suicide would be the end of the affair if I failed. At the end of five weeks he was again calm and set to work. His strength came back and his appetite increased; he slept well, without night-mare.

After two months he went back to ordinary life, completely cured, full of moral vigour and talent.

In conclusion let this be said:—

Love is one of the physical forces which our organism draws from contact with the ambient world. These forces are of two kinds: some are permanent, and, like the air, light, heat, the electricity of the atmosphere, and the blood which circulates in our veins, constantly stimulate our nutrition and keep us alive. Others are momentary—love is the type of these. They permit the supply of certain passing needs of existence.

This demands clearer explanation.

You see a woman who pleases you, and your attention becomes fixed on her—you love her. Henceforth, the simple fact of seeing her, hearing her speak and pressing her hand, communicates its powerful vibration to your nerve centres; these the brain stores. It is a first-class

tonic, potent as a generous wine. If the man who falls in love thus has a strong brain, master of itself, and if his central nervous system is well balanced, love will bring him an increase of vigour and health. He no more risks becoming a morbid lover than he would risk becoming a morphinomaniac because he had had a single injection, or a victim of alcoholism because he had drunk a glass of burgundy. Such a man rejects the intoxication of passion. Love and good wine will be only tonics to him, not poisons.

But, besides this lover in perfect health there are many others not so fortunate.

Leaving out of account the notably deranged, fetishists, erotomaniacs, strange specialists who can fall in love only with a lock of hair or a slipper, there is also what is called the passionate man, he who suffers and inflicts suffering, the neuropath, whose characteristic seems to be to love a woman just as the morphinomaniac loves his injected drug, being in torture without it and each time he resorts to it a little worse than before. With these love is a disease, a terrible disease that makes them thin, dyspeptic, and sallow of complexion, gives them over to anæmia, bringing them to the extreme of excitement or exhaustion just as poison would do.

These love intoxications are to be cured as morphinomania is cured, by separation, humanely graduated, and by tonics for the nervous system, douches, &c.

Finally, I think love may be said to be a force procured by our organism from the mere presence of the woman on whom our attention becomes fixed. If we are in a state of intellectual balance, normal health, that force is a

powerful tonic for our organism. If we are neuropaths, "with an heredity," to use the accepted term, the force may became a poison to us; and thenceforth love is a disease, a passion—intoxication analogous with alcoholism or morphinomania. It may be treated by similar therapeutical processes—and sometimes cured.

CHAPTER IX.

ANGER AND ITS TREATMENT.

Examples of anger : The anger of the weak—The anger of the strong —The symptoms of anger—Analysis of its causes : mechanism of Anger—Treatment : a dispensary for nervous children.

We are still so little accustomed to consider, otherwise than in pure theory, the relations of the physical with the moral, that it seems strange ("original," the phrase is) that a doctor, not satisfied with watching the course of bronchitis or relieving dyspepsia, should think of treating the passions and painful emotions of men; should aspire to become a healer of the soul, to do good to the mind. Therefore I must, first of all, relate how I was led to treat the condition of Anger, as I had already treated the conditions of Indolence and Melancholy.

I have very rarely been asked by choleric persons to cure them of what the majority of men regard either as a sin which can only be laid down in the confessional, or as a singularity of mind not so painful to oneself as to one's neighbour. And how many there are who are scarcely conscious of their ill-temper! But nerve specialists know that, when the treatment of a neurasthenic patient is drawing to an end, some of his friends will be sure to

observe the improvement of his normal condition. They do not fail to remark:—

"He is better in every way and his temper has changed, thank goodness! If you only knew, doctor, what fits of temper he had, like an angry child, about anything and everything—how impatient he was if breakfast was five minutes late. He who would not harm a fly terrified us at times with his loud talk, sudden movements and wild eyes. He is much more master of himself now."

It is now an established fact that neuropathy of many kinds is habitually accompanied by irritability of temper, and that the cure of neurosis brings with it the restoration of moral balance. But this is an ordinary case, I advert to it merely to arouse the attention of the moralist by its constant occurrence.

Here is something more novel and to the purpose.

I.

In January, 1893, one of my patients came to me more drooping and melancholy than ever. Madame G—— was anæmic and neurasthenic, and I was treating her for obstinate neuralgia. She was no sooner seated than she burst into tears, and then confided to me her sorrow. Her son, a boy of seventeen, was its cause. He was a clerk in a bank, and fault was found with him there for carelessness and inattention; but when evening came, and he had eaten a hurried dinner at home, he would go out and join a bad lot, male and female, at a café on the outer boulevard, remaining in their company until late in the night. His mother would wait up for him and reproach him gently with the anxiety his late hours

inflicted upon her. Paul G—— would fly into a violent rage, extending to threats. One night he struck her in the face so violently that her lips were bruised and her teeth loosened. But the night before she came to me had been the most terrible. In her fear for her son's future, and dreading lest he might join some band of criminals, Madame G—— had him followed; he at once perceived this, and was so furious on his return to the house that he snatched a log from the fireplace and brandished it over his mother's head. The foulest abuse, atrocious threats, and the insults that are common in paroxysm, accompanied the savage action.

While relating this story, the good woman strove to excuse her son. Her maternal love refused to believe that he was entirely responsible for his state. No one was more affectionate or caressing than he on certain days; indeed everything came to him by fits and starts, whether pleasant or mischievous. Like many mothers she forgot to take into account her own nervousness, but she took care to relate the case of the boy's father, a Corsican, who had come to Paris to serve the Second Empire, and who had the almost savage impulsive violence of his native wilds. He had died a year before, paralytic and quite demented. Such an heredity, with the love of evil company and his rebellious disposition, could only bring her son to some bad end.

She asked me to give him advice and medical care. At her entreaty Paul G—— consented to see me. Availing myself of the terror with which the illness and death of his father had inspired him, I persuaded him easily enough to submit to regular treatment. He was of that weak and

ductile nature over which it is easy to gain influence for good as well as for evil. A criminal could have disciplined him as well as myself. His mind was made to obey and depend on a master.

My examination of Paul G—— revealed several of the physical and a great number of the moral stigmata of what is called degeneracy. He was not hysterical, but rather neurasthenic. No haunting thought or fixed idea "narrowed the field of his consciousness," to use M. Pierre Janet's strong expression; but his physical and mental faculties in general worked feebly.

The blood pressure in the arteries was low, the sight weak,[1] general sensibility dull, nutrition languid. Under the influence of momentary stimulation, his hand could bring up the dynamometer to a sufficient number of kilograms; but the effort was invariably succeeded by exhaustion. His stomach was dilated and all his muscles wanting in tone. Those of the face were relaxed, giving him a permanent expression of dejection and dulness.

All these defects of his vitality reflected on his mental state.

Shyness, indolence, melancholy, and fear formed the basis of his character. His anger was sudden and violent, but it was quickly appeased, and alternated with phases of tenderness. It was the anger of a weak person, an impulse which he had not strength to control. His will, and his capacity of attention were as weak as his muscles;

[1] Neurasthenic and depressed patients are very liable to a fatigue of the sight which oculists call "accommodative asthenopia"—a weakness of the movements of adaptation to vision for different distances.

he could not suffice to himself, and was always ruled by others. Like many who resemble him, he was very timid; he was constantly haunted by dread of illness, and started at a sound. This combination of fear and fury is frequent in the case of youthful offenders. They tremble as they enter the house which they are to rob; but, if they are surprised by the presence of some unexpected witness, the nervousness into which their fright throws them passes on the instant into extreme excitement, and turns them into assassins on the spot. Thus, two emotions, which at first sight seem contrary, are united; the fact is our mind has been too long accustomed to regard fear as a depressing emotion only; we have not sufficiently observed how frequently anger is but a quick reaction from debility.

From this point of view the example of my young patient is striking. The weakness of his entire organization. the sluggishness of his nutrition, his cerebral fatigue, and the lack of cohesion and resistance in him allowed every impulse to have its way; and that was the real reason of those fits of anger which I was asked to cure. I had proof of this during the treatment itself; tonic treatment, with the help of healthful conditions, acted strongly upon his mind. It is well known that sedatives, and bromide in particular, produce very undesirable effects in nervous cases of this kind: they lead to a sort of apathy which is far from being a cure.

I resorted to the following method.

To give fair play to active treatment, artificial stimulants, wine, alcohol, liqueurs, beer and coffee were forbidden, and I was careful to prescribe a food regimen which reduced digestive fermentation, often a source of brain

poisoning, to a minimum. Through fear of the grave maladies with which I threatened him, Paul G—— submitted to these privations and drank water at his meals. He also obeyed, after resisting for a week or two, when I prescribed early rising, friction with the hair-glove immediately after, succeeded by a little task which I inflicted on him; this was the copying of a few wholesome maxims appropriate to his state. He ended by giving up his evening expeditions and consented to go to bed soon after his dinner. The fear of committing a crime would certainly not have reduced him to this perfect submissiveness, for he had been imbued from childhood with notions of free will: he was persuaded that he could restrict himself to threats merely, and that his will would always govern his actions. He thought that will and power were always united, a dangerous, because a deceptive idea. How many are the murderers who, having trusted to that notion, have suddenly found themselves with bloody hands, and eyes terrified to behold what they have done! How much more moral it would be to teach us from our youth that the will may become diseased, and also that it may be treated and improved.

The will may be improved, as M. Ribot saw long ago, by restoring the nutrition of the brain by tonic means. In the case of Paul G—— I employed simultaneously and progressively caffein in small doses, static electricity and artificial serum, those injections of salt water, which have been so extensively used of late years and which I hold, as I have already said, to be the most powerful, manageable, and useful of all stimulants of the nervous system.

Four weeks of this regime produced a notable improvement. The sallow skin of the patient became suffused with colour; his eyes looked at you frankly; his muscles being in better working order, his body seemed lighter to him, and his stomach recovered tone. Soon afterwards his temper became more even; the great crises became rarer, and their intensity was less. By degrees his anger died away and, after two months, my patient was only occasionally impatient. His fits of fury have never occurred since. By my advice, Paul G—— enlisted. His superiors have never had to inflict a serious punishment on him. The rebellious boy has not once committed an act of insubordination. Exercise, life in the open air, and military discipline have completed his cure.

I have chosen this case because a choice was necessary. I could match it with at least three others of equal gravity and interest, not reckoning the cases in which the merely irritable condition has disappeared in neurasthenic patients or has been notably improved under the influence of the ordinary treatment of neurosis.

For a time I applied myself to studying the effects of tonic injections of salt water on young tuberculous patients; for several months I pursued my investigations with Dr. Sevestre, at the Trousseau Hospital, and especially in the consulting-room of the *Œuvre des Enfants tuberculeux*, under the direction of my friend Dr. Derecq. Our hypodermic transfusions generally produced a rise in the vitality of the depressed and exhausted patients, also improved nutrition, and, each time, we observed a corresponding improvement of the mental state, less

melancholy and less proneness to anger; a tranquil disposition and peace of mind springing from the half-conscious inner sense of recovered strength and pleasure in living. Frequently we could record only a temporary improvement, the evil being in many instances stronger than the remedy: just so long as the therapeutical suppression of weakness and physiological suffering lasted, there was a considerable diminution of the tendency to nervous excitement about everything and nothing.

I only confirm by some examples a truth long familiar to specialists in neurology, when I state that there is a kind of anger closely allied to the condition of organized fatigue, profound exhaustion of the nervous system; it is that irritable weakness the very name of which is synonymous with neurasthenia, and it may be cured or greatly ameliorated by tonic treatment methodically applied.

But the whole history of anger has no such narrow bounds. By the side of these anæmic, asthenic persons we must place the full-blooded, the plethoric or "hypersthenic," as we say nowadays; in other words, those who have too much energy. The over-excitement of a weakened nervous system, and the rage of a butcher of La Villette are equally and to the same extent objects of curiosity to the psychologist and solicitude to the doctor moralist.

There is a sensible difference between these two sorts of angry men.

The weak one is the more irritable; the strong one the more irritated. The first, more liable to nervous irritation, with whom reaction is quick, gets into a violent passion

which blazes up like straw and is as rapidly extinguished, while the other remains in a permanent state of tension, chronic excitement, or brutal passion. The neurasthenic or depressed man who quarrels may be thrown into a paroxysm of anger in a moment, but the recoil is prompt and complete; he is brought back to astonishment at his conduct, to shame and repentance; the neuropath reverts to his normal condition of shyness, indolence, humility, and sometimes very tender affection. On the contrary, the hypersthenic is always proud and masterful, courageous, bellicose, and fierce, pitiless because he has himself no need of pity; and constantly on the brink of exasperation. Should the conditions of his daily life not consume his excess of vitality, his need of expending his super-abundant energy, the suppressed steam of his human machine, his turbulent strength strives to find an outlet and to strike. In time of war, such men prove themselves heroes, and brave death so as to win the admiration of the world.

Such men have merited statues simply for having soothed their nerves by lawful butchery. So superb was their valour, so lofty their disdain of danger and death, so magnificent was their attitude, so noble and so sacred the cause they served, that the multitude could not fail to be moved by the tragic beauty of the spectacle they offered. The philosopher, who breaks the human doll to look for what is inside it and to learn its inner mechanism, also feels the thrill of the grand drama; but the sum of his imperturbable analysis reveals to him only an excess of force in these hypersthenic subjects, only anger which finds a noble outlet in service done for the country. He

reflects that those very same men, who make so great a figure in the history of the First Empire—born for the most part in the lower ranks of life, who rose by their own valour only to the estate of dukes, princes or kings, might have come into the world in a time of profound peace, when their superfluous force might have expended itself, for want of other means of dispersion, in quarrelling with their neighbours, beating their wives, or worse still; their natural heroism and overwhelmning vigour might have found its entire use in such-like miserable doings. Consider the Restoration: the wars are finished, the troops in part dismissed, the officers on half-pay, but the habit of fighting an enemy has not yet been lost, and the need of battle is in every man's mind. Never did there occur so many duels, conspiracies, and murders,[1] or such an exodus of young men to countries where fighting is still going on; while others, making a diversion, employed their superfluous ardour in the composition of lyrical poems, stilted plays, or romances of adventure, with a famous feat in every page.

On returning to our parallel, we shall find that physiological examination of the man who is choleric from

[1] It is very possible that the present cessation of wars in Europe may be, temporarily, one of the causes of the multiplication of murders. At the time when the soldier's trade was followed by vocation, not by obligation, many hypersthenics found appeasement for their bellicose nature in it. But it is very probable that men of superfluous strength will come to adapt themselves to a peaceful life for the most part. Their permanent excitement will be fully utilized in writing poems of lofty flight, in creating and carrying out venturesome commercial enterprises, in exploring and colonizing distant and wild countries. Contrary to the teaching of Lombroso, I think that circumstances, our environment, and our education, enable us to turn our cerebral energy to harmful purpose, or to use it for the common good.

nervous weakness, and of the man who is carried away by excess of energy, does but define the above-stated differences of temperament with precision. Paul G——, the example which we have recently analyzed, had a pale, melancholy face, his sight was weak, his legs were feeble, his stomach was dilated, his nutrition was languid, the blood pressure in his arteries was low, and he was deficient in "sensibility." The hypersthenic subject has a high colour, bright eyes, and elastic limbs, powerful hands, the muscles short and thick like those of beasts of prey, a voracious appetite, his nutrition is superactive, and the pressure of blood in his arteries much above normal; tonic treatment, so far from improving his condition, aggravates it, producing congestion, while strong doses of bromide soothe and calm him by reducing the total activity of the brain.

2.

Here I must briefly narrate a fact which I witnessed, as the observation appears to me instructive.

Michael S——, a Russian boy thirteen years old, was brought to me by his grandmother. His illness was of a curious kind; it was simply a desire to strangle his little sister, four years his junior, and this had been recurring for two years, each time more strongly; the boy suffered intensely from what seemed to him an imperative and irresistible impulse, harder to resist on each visitation. One day the poor fellow, feeling that he was becoming unable to restrain the terrible impulse, more agonizing and imperious than ever, resolved to seek assistance, and to reveal all to his grandmother. Yet he

made his confession with so little apparent emotion that she hesitated as yet to take him seriously; but he insisted so strongly that she decided on consulting a physician.

He was a strong boy, big for his age, with full red cheeks and an air of animal contentment and satisfaction with life. The fearful drama being acted within him had not troubled his mind apparently. His face bore few traces of degeneracy, but there was something strange about the eyes; these were steel grey,[1] set unusually close to the nose, and they assumed a curious brightness, literally like the sheen of a steel blade, when he spoke of his hideous temptation.

He said it took hold of him every fortnight—the fits became more frequent as they increased in intensity—especially when his sister was particularly gentle, submissive, and affectionate towards him.

An appalling force then rushed suddenly to his brain, and he felt his being—or rather that new being which had just risen up in him—strangely light, strong and nimble. Then a picture came; this the boy localized behind his forehead, and forced itself on his mind. He beheld himself in the act of strangling his little sister. The awful spectacle became more precise and more intense every second, at the same time as he was driven by the despotic, furious and well-nigh irresistible desire to realize the image by the corresponding deed. And all of a sudden a different scene: now

[1] This strange glitter of the eyes exists in many states of cerebral excitement; it is observed at certain moments of alcoholic intoxication, in victims of morphine, in some lunatics in their fits of acute mania, and in depraved persons when they are dwelling complacently upon their vices.

it appeared to him that the crime had been committed, that his sister lay at his feet, killed by him, and his grief was great. He came out of this waking nightmare utterly cast down and exhausted, but released from his terrors for some days.

The boy clearly recognized that, some day or other, the picture would come to him with such intensity that he would no longer be able to resist, but must necessarily obey the terrible injunction.[1]

The crisis being past, Michael S—— recovered himself. After a day or two of languor, when he would be a little depressed, he again became the turbulent, quarrelsome boy, ready to stamp his feet or to use his fists on the smallest provocation; this irascibility increasing until the periodic crisis which I have described, accompanied by voracity incredible at his age, and continual moving about, walking, climbing trees, leaping over walls, stretching of the muscles, and filthy paroxysmal talk.

The boy's grandmother informed me that, as I suspected already, the father of Michael S—— was a confirmed drunkard, and that the period of his marriage which preceded my young patient's birth marked the culminating point of his vice. I soon became aware that Michael's young sister, who had come into the world under the same conditions of heredity, was subject to fits of epilepsy, and that Michael himself had sometimes given slight but

[1] In his *Psychologie des idées-forces*, M. Alfred Fouillée has made a remarkable beginning to knowledge of this tendency to the act which accompanies our mental representations, and which, when the image is very intense, becomes an agonizing need of realizing it.

characteristic signs of what the ancients called *morbus sacer*—the sacred malady.

By minutely observing the case (the details cannot be given here) I came to the conclusion that the boy's fits of fratricidal fury, psychical convulsions, to use Maudsley's expression, were nothing else than the mental equivalent of epileptic attacks; that they took the place of epilepsy, were consequently of the epileptoid nature, and that treatment by bromide in large doses was necessary.

In fact, that treatment produced the happiest results: in less than three months the epileptoid symptoms, along with the fits of fury, disappeared completely. Two other observations, as exact as laboratory experiments, have been made by me. In the first case the subject was a young man of twenty-six, in the second a boy of seven years old, the children of drunken parents. Both were hypersthenic, each had a touch of epilepsy, and both were subject to fits of furious anger. The boy of seven had several times been on the point of stabbing or strangling his schoolmates. My observations of these cases confirmed me in the opinion that the surprising fits of anger in children, and those tendencies to homicide and suicide which are so frequent in our day among the young, are to be explained in like manner.

Falret described long since, under the names of "*petit mal intellectuel ou grand mal intellectuel*," certain paroxysmal states of mind in epileptics, which are, in reality, only anger, extending from simple vexation and the desire to cuff and thump, to the fury of the acute malady. Legrand du Saulle held that these psychical

paroxysms have no proper existence, but are always connected with an epileptic "absence," or a positive attack of the *haut mal*. M. Féré and the neurologists of our day, on the contrary, are inclined to believe that they may be observed as isolated and independent phenomena. I am absolutely of that opinion. Anger may be the only revealing sign of the cerebral troubles which, more accentuated, determine the convulsions of the *haut mal*.

In conclusion, I think the moralist-doctor, when dealing with a child or with an adult, neither being insane,[1] but subject to outbursts of passion, ought to look first for the characteristic signs of exhaustion of the nervous system.[2] If he does not find them, if, on the contrary, the subject reveals to him the symptoms of hypersthenia, vital superactivity and habitual nervous irritation, there the chances are that strict inquiry will prove the existence of alcoholism in his forefathers, and in the collateral line or in the patient himself, mild or severe epilepsy.

No doubt, it cannot be too often repeated that the hypersthenic angry man is not necessarily a positive epileptic;

[1] There can be no question here of the fury of acute mania, or of that which alternates with periods of deep depression in so-called "circular madness." Yet the anger of madmen is of the same nature as that of neuropaths: it is only more formal, more violently impulsive, more utterly withdrawn from the control of consciousness, and more irremediable, because it is habitually connected with intoxications or incurable anatomical lesions. But, like all anger, in its final analysis it is only the result of the mechanical or chemical irritation of the cells of the grey matter of our brain.

[2] There is also the anger of hysterical subjects, a special anger, in my opinion, but I can only allude to it here. A very remarkable study concerning it may be found in the works of M. Pierre Janet, notably in *L'Automatisme psychologique* and *L'Etat mental des hystériques*.

but treat him with bromide as if his rage were the equivalent of an epileptic attack, and you will cure him.[1]

3.

Now that we know the two extreme types of the man disposed to anger, let us endeavour to understand that mental phenomenon, that "affective state," which is called anger, and to disclose its nature.

It is evident that we cannot admit anger of two kinds: it is a certain degree of cerebral excitement, and it is the same for all: the hypersthenic subject is always on its verge, while the neurasthenic, in the depths of weakness, becomes infuriated only by a sudden bound of reaction excited from without. But at the moment when they are let loose, the two are alike—save that the strong man is a blinder brute, while the weak man is somewhat of an actor and seems to aim at effect—the physiologist discovers the same cardinal symptoms in both.

Professor Lange, of the University of Copenhagen, has described these symptoms with precision in an important little book, which has been the starting-point and confirmation of almost all recent researches.[2] He can hardly

[1] Among hypersthenic subjects liable to frequent fits of anger excited by nutrition we must also reckon the victims of alcohol and absinthe, gouty persons, and certain diabetic patients. With them anger is the result of an actual poisoning of the nerve centres. The suppression of the toxic agent, diet, the use of bromide and alkalines quickly subdue their fits of morbid fury.

[2] *Les Emotions* (French version by Dr. G. Dumas. Paris, Alcan, 1895). Compare also the writings of Darwin on the expression of feeling, the *Pathologie des Emotions* of Dr. Charles Féré, and the recent work of M. Th. Ribot, the eminent professor of the Collège de France—*La Psychologie des sentiments.*

be reproached with too evidently desiring the triumph of a favourite theory: he holds that all the emotions are due to disorders of the circulation of the blood, and anger in particular to a very intense dilatation of the small arteries of the brain. He describes redness and swelling of the face as a constant sign of anger, forgetting the "white" rage which is so frequent and impressive. But he has brought into strong relief this capital fact, that anger is a state of general hyperenervation. The whole organism, the muscles and the glands—for anger has its tears, sweats, and foaming at the mouth—manifestly set in action by a sudden superabundance of nervous influx, begin to work to excess, act for the sake of acting, in disorder, without aim, without utility, solely to relieve their over-tension. Look at the man in a rage, listen to him as he pours out all the big words in his vocabulary; these are paroxysmal words. He stamps, clenches his fists, strikes men or things, throws the books and art objects within his reach against the wall, though these are but so many impassive and innocent witnesses of his opposed desire. His teeth are clenched, his eyes are staring, his jaw projects, the muscles of his face are knotted, his dilated nostrils quiver. For a moment released from the control of consciousness —for anger is indeed a passing craze, the *furor brevis* of the ancients—his movements are only too rapid, too strong, too easy; his words are poured out with frantic vehemence until the moment when his precipitation makes them halting and confused. This unloosing of natural activity, of exteriorized force, will go on like an avalanche until nervous relief has been obtained; then sometimes a ruder movement, the destruction of something prized,

some ill deed done puts on the brake; the cerebral storm is laid and disperses, the tempest of the mind is stilled.

This impulse to break, to destroy, to reduce to nothing, is a strange thing, a far-off vestige of savage times when human rage was slaked only by killing. Let us not deceive ourselves; our love of hunting, which forms the pleasure of civilized people and men of high culture, is only an inheritance from ancestors who struggled for life against wild beasts, and were themselves only beasts of prey, a little more cunning and cautious than the others. The critic or the philosopher is rarely a "sportsman." You cannot imagine Renan handling a gun. The few "intellectuals" who indulge in sport of this kind regard it chiefly as a sanitary measure—it forces them to walk. But to kill for the sake of killing is a cruel way of occupying leisure. I know two nervous hypersthenic subjects, men engaged in trade, very amiable persons in ordinary life, who are subject at times to paroxysmal attacks: on such days they leave Paris suddenly, dreading their nerves, and go to their country places, where they kill rabbits, bred for the purpose, in a yard. When the hecatomb is sufficient, disgust of killing takes hold of them and they return to their business with quieted nerves. This is the only means whereby they can avert fits of anger which might be too dangerous. One day a slightly alcoholic neuropath left his son, whom he was scolding violently, went into the garden and stabbed his big dog, a great favourite, with a knife. I had already been observing him. When he confessed this act of horrid cruelty, he acknowledged to me that he had been on the

point of striking his child, and, unable longer to resist the murderous impulse, he had immolated a less precious victim to his ungovernable rage.

During fits of anger, I think it may be said that all the muscles of the organism are in a state of extreme contraction. We already know that the hand of an impatient man, in a state of mental irritation, presses the dynamometer with unwonted energy: in fact our whole being is affected, but even the muscles of our vegetative life, those of our stomach or those of our arteries, share our enervation and are contracted.

The following is an example of this fact.

Madame X—— is an anæmic and neurasthenic young woman. She is especially irritable when there is snow in the air, or when a storm is brewing. In the state of calm, she is invariably languid and fatigued; the blood pressure in her arteries is low; measured by the sphygmometer of Verdin and Chéron, it gives an average of 14 centimetres mercury. If the blood globules in her arteries are counted we find 3,224,000 per millimeter. Let a storm come on and the patient shows great irascibility: from 14, the blood pressure goes up to 21 centimeters mercury; from 3,200,000 the number of globules rises to 4,712,000. Now this is what takes place. Under the influence of the general stimulation of the nervous system produced by the barometric, or more likely by the electric state of the atmosphere, the muscular fibres surrounding the arteries in which the blood is circulating and which form a continuous sheath for them, are tightened; the calibre of the arterial tube diminishing, and the blood being under a very high pressure, the

watery part has been driven back into the surrounding tissues, and the red globules, diluted in a less quantity of liquid, appear far more numerous in the field of the microscope.[1] This concentration of blood and rise in arterial pressure I consider to be almost always present in cases of anger. I have found them whenever I have been able to examine the patient. Dr. G. Dumas, the head of the psychological laboratory attached to the clinical chair of mental diseases at the Faculty of Medicine, has verified, in the course of a recent study of what is called "circular" madness, that in the case of these patients during their periods of mental depression, the arteries are always relaxed and the blood diluted, while at the height of their period of excitement an extreme concentration of the blood is manifest.

It is certainly owing to this overstrained tonicity of all the muscles of the organism that some choleric subjects complain of having a sensation of morbid lightness during their fits of passion which is sometimes painful. A great many of them are not conscious of anything of the kind; but others very clearly describe this singular state in which their bodies seem not to touch the earth and they move with

[1] Dr. Jules Chéron was the first to study the variations in the number of red globules under the influence of external *stimuli*, in comparison with the variations of arterial pressure. At the Bordeaux Congress in 1895 he gave an explanation of this interesting phenomenon, which is now universally adopted. It is also owing to Dr. Chéron that we understand those almost instantaneous *hyperglobulies* which take place under the influence of mountain climbing, or the action of the cold douche, the injection of serum, massage, or when a storm is brewing. A moderate *hyperglobulie* is accompanied by a sense of ease and cheerfulness, but when excessive, it is accompanied by nervous irritation, anger, rage.

wonderful ease, as though they had suddenly been transported to some minor planet where the laws of gravity are not the same. Nothing is easier to explain. The man who is weary, dull, and timid, painfully drags about a body which is a burden to him; he is wanting in tonicity. On the contrary, the man in a rage has an excess of muscular tonus. His nervous system for the time being is so exuberantly rich that he cannot restrain it. Now it is our nerve centres that carry us along and keep us up; let them be ever so little weakened we are depressed; so long as they remain at a certain pitch of vivacity and vital energy we are strong and cheerful. But if they become too vigorous, this feeling of gladsome lightness often grows painful.

There are many who do not perceive this symptom, because in the state of anger we become almost anæsthenic, we perceive very little. In my thirteenth or fourteenth year I happened to fight a duel—with my fists —with a schoolmate who was an inveterate tease. After we had exchanged blows for a minute, I no longer felt any of those which hit me, and yet (so my seconds told me afterwards) I struck back with redoubled vigour. M. Pierre Janet would say there was a narrowing of the field of consciousness, or absorption by a fixed idea and consequent distraction. As I hold that human energy is born of sensibility, I believe rather that my motor activity utilized my sensations with such rapidity and so completely that I had not even time to perceive them; I dispersed them as they came: automatically, by reflex mechanism, the blow given was metamorphosed into a blow returned.

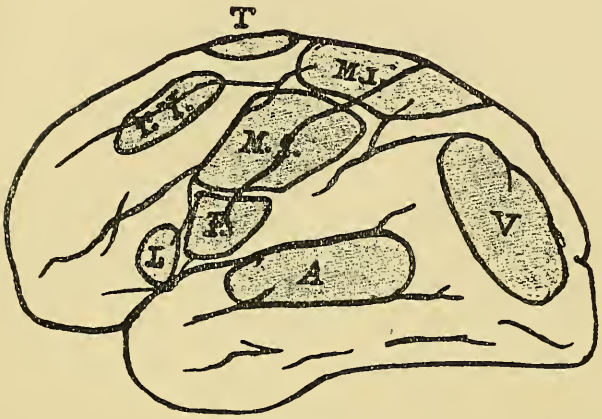

FIGURE 14.

M.I, centre for the movements of the lower limbs ; *M.S*, centre for the movements of the arm and of the hand ; *T.V*, centre for the movements of the head and of the eyes ; *T*, centre for the movements of the trunk ; *L*, centre for articulate speech ; *F*, centre for the movements of the face and of the mouth ; *A*, centre for hearing ; *V*, centre for sight.

If now we consider as a whole all that exterior apparatus of anger, we clearly see that it essentially consists of exceptionally vehement muscular contractions. All the muscles come into play, those which serve to move the legs or to clench the fists, as well as those which are used in the articulation of words, not reckoning the smooth fibres of our arteries or of our stomach. The central nervous system being at a very high pitch of its energy, those gesticulations of the limbs and those words are violent and paroxysmal in proportion to our animation, and threatening gestures and vile expressions will be used by the last persons from whom such would be expected.

Now, look at a cerebral hemisphere, study its topo-

graphy, its geography, and you will easily conceive what anger is as an interior phenomenon (see figure 14). All the zones which preside over the general sensations, or particularly over hearing, over sight, are nearly extinct; all the energy at their disposal is concentrated on the motor nerve centres of the limbs, of the trunk, the head, the eyes, and the face, and on zone L, quite near the others, and which serves us for the articulation of words: our speech and actions are caused by a conflagration of that vast territory from which the nervous influx starts. The crisis of anger, then, seems to us short of total loss of consciousness, with its cries, its spasms, its sometimes incoherent words, its stamping in pure frenzy, its meaningless gestures, its purposeless movements, to be a sort of fit, and certainly it comes within the province of the physician.

We have seen that Anger in the case of epileptoid nervous sufferers frequently substitutes itself for convulsions, rendering itself their equivalent; in the case of hysterical persons, when sharply opposed and irritated, it rarely fails to resolve itself into a genuine attack of hysteria; and thus we are led to the conclusion that nervous fits and fits of rage have the same essential symptoms, the same important exterior manifestations, and the same cerebral mechanism. Doubtless, at the starting-point of anger we often find intentional malice and the will to injure, and it takes different forms, sometimes with long premeditated vengeance, decided on only after mature deliberation; but these are complex facts for future study. Let us for the present be content to form a clear idea of all that there is in a great fit of anger —vain expenditure of effort, aimless movements, energy spent in biting the fists, stamping on the ground, kicking

against doors, or tearing up a book: all this clearly indicates a mental condition of no high order.

At every step we recognize more clearly that the problem of anger is a problem of cerebral mechanics.

4.

The study of the determining causes of fury leads us to information still more curious and precise.

Under what conditions do we observe this explosion of excessive force produced? The nervous child and the neurasthenic adult, who himself is only a sort of child, are, in this connection, inexhaustible subjects of instructive observation.

Let us consider the child. The phenomenon of Anger occurs on the slightest opposition, at the refusal of a bonbon, the interruption of play, or because he is told it is time to go to bed. Here, again, the mechanical interpretation presents itself. Desire, provided it be ardent, is an accumulation of attention, and consequently of nervous energy, on an object whose mental image occupies the whole stage. Suddenly, by a brief order, you suppress in this child who was thinking of nothing but its play and saw nothing else in the world, the aim toward which everything in him was tending so earnestly. But the energy accumulated in the motor zones of his brain remains,[1] desires to be utilized and demands to come forth. Experience has not yet taught the child the meaning of the word

[1] Desire is, in fact, nothing but an accumulation of forces toward an end. When we expect to find a cross-piece on which to place the foot under the table at which we are sitting, and when the foot, not finding it, is forced to place itself lower than we had expected, the result of this ill-satisfied desire is an impatience of the leg—a local nervous irritation which shows what is, in its most rudimentary form, the nature of irritation caused by the failure of the most simple desire.

duty, and he lets out all his excess of nervous tension, stamping with his feet, and trying to hit those who oppose him; then, since his muscular weakness soon deprives him of the hope of victory, his tears flow, tears of impotent rage, which finally console him and relax the excitement of his brain.

But the physician who has to deal with nervous cases is especially struck by the fact that, in the great majority of these, anger breaks out for insignificant reasons, or without any apparent motive. I speak not only of the "persecuted" man who happens to be jostled slightly by you in the street, and who takes you to task as if you had purposely insulted him. I knew a neurasthenic person (perhaps he was not perfectly sober) to slap the face of his neighbour at the theatre, because the latter had turned round and looked at him for a moment. That evening a storm was in the air, and it is well known that a great atmospheric tempest provokes cerebral storms. This is a well-known effect of low barometric pressure, or more probably of high electric tension, in the air. Others than myself must have remarked that on certain days, when snow was threatening, or hail, or some storm, that the street horses will run away more readily, and the cabmen be more brutal to their horses, more insolent to their fares, and coarser in their disputes with each other. I have often been able to measure the degree of nervous irritation produced by a storm, with instruments of precision. I give my method and the figures of comparison which I have recorded.

Take an anæmic and neurasthenic person whose arterial pressure, measured at the radial, is habitually from twelve to thirteen centimetres mercury; the

dynamometer gives for the right hand forty-five kilogrammes and thirty-six for the left. You may count for a cubic millimeter of blood 2,852,000 red globules. The skin is but slightly sensitive to pricking; and the two points of Weber's compass are perceived as distinct from each other only at a distance of eight or nine centimeters. By the method of Dr. A. Henocque we may calculate the activity of reduction of the oxyhæmoglobin (that is, the time taken by the red blood to change into dark blood and make its chemical changes in the tissues); we shall find that the activity of reduction is 0·60.

In stormy weather this same person will show extreme signs of nervous irritation and be impatient and irascible, while yielding to your scientific curiosity—but without interest, for attention is held captive by the state of excitement. The following comparative table is the result[1]:—

	Normal state.	Anger imminent.
Arterial pressure	13 centimeters mercury.	21 cm.
Dynamometric force—Right hand .	45 kilogrammes	54 kg.
Left hand .	36 kilogrammes	42 kg.
Number of red globules . . .	2,852,000	5,115,000
Activity of reduction of red blood to dark blood	0·60	1·10
Threshold of sensibility . . .	8 cm.	1½ cm.
Excreta (urea emitted in twelve hours)	8 grammes	21 gr.[2]

[1] It is impossible to measure the "sensory circle" (called by the French, in the application of Weber's compass, "threshhold of sensibility"), or to count the globules of a man in a state of active fury; he would quickly rid himself of operator and instruments. But, by choosing persons of every day acquaintance for one's subjects, it may be possible to observe leisurely, if not the mind's tempest when fully unchained, at least the state of acute tension which immediately precedes it and while the entire organism is under preparation.

[2] I once had the opportunity of measuring the exact quantity of urea passed in twelve hours by a nervous man, who had been during the day in a violent and prolonged fit of anger.

We have then an excited condition of the whole vital activity. In the condition of nervous excitement all our energies are at high pitch. The heart sends to every part of the body concentrated blood, extraordinarily rich in globules, which utilizes itself instantaneously in the tissues; our organic combustion takes place with almost doubled intensity, our sensibility is considerably excited: we are too much alive.

I know well that these figures—of the earth, earthy—will arouse opposition. Many excellent and sedate persons, accustomed from their youth to regard anger as a purely intellectual phenomenon, will accuse me of desiring to debase the human mind to the level of a mere paltry machine. But, I will answer only that I am not a materialist, since I do not believe in the objective reality of matter; and I only follow the fatal evolution of human knowledge which goes from psychology to physiology and from the natural sciences to the mathematical. Man is inevitably led to desire to try to measure everything.

And then, if the craving be in us, can we not always superimpose the immortal soul upon the cerebral machine? St. Thomas and the scholastics strove magnificently to do this. Besides, there are cases of anger which really have no connection with intellectual things. Lions and dogs have no immortal soul; yet they have fits of fury and violence. In man, let it be observed once more, by far the most frequent kind of anger is that for which no great motive exists, the anger that seeks a pretext for its outbreak. If we observe closely, we must acknowledge that very often it is because our brain is previously excited to a certain degree that we are angered by some

fact which would have left us undisturbed a day or an hour before. A plausible motive for our state of nervous irritation is only a second thought.

How many examples might be quoted in proof of this.

We all know what an electric state of the atmosphere does to a sensitive person. In hospitals, or asylums for sickly children, quarrels, disobedience, and revolt are the rule on stormy days. Give a neurasthenic subject a bath too hot or a douche too strong, and for several hours he will be in what is called an intolerable temper. Nervous irritation may be caused in a neuropath or a child by too frequent massage or too rough friction with the hair glove. A very nervous student had one day to remain for a whole hour at a professor's lecture, with his head exposed to the rays of the sun which came through the windows of the hall; he was usually a very quiet person; but this made him so quarrelsome that an hour later he had a foolish quarrel with a woman whom he really loved, and treated her with abominable rudeness.

We all know that anger is a phenomenon which may be produced experimentally and, so to speak, at will; a little alcohol may excite the most timid brain to rage and brutality. In a preceding chapter (VII.), I have previously narrated an experiment all the more conclusive that it was involuntary. I shall now only revert to the principal facts.

A servant who chanced to be in my house for a few days became physically so depressed and morally so sad and timid that in order to give her some courage, I tried a strong injection of artificial serum with her. I had said nothing to her about the effect I expected from it, and my

expectation was greatly exceeded. The dose was too strong for so exceptionally weak a constitution; and the injection produced intoxication, with a fit of mental exasperation; her eyes were bright, her words loud, her gestures angry; she broke the dishes, slapped the child, quarrelled with the cook, and, in less than three-quarters of an hour, all her respect for her master was changed into insolence. From having hardly any power to work, she had been suddenly transported to excessive strength and feverish activity by over stimulation of her nerve centres. That day she expended a formidable number of muscular contractions; she experienced the sensation—of which I have spoken in the beginning of this chapter—of her body's being too light and about to rise off the ground; she was urged to act; and her voice, which was habitually dull and muffled, sounded like a trumpet.

If care be taken to treat neuropaths by small doses at first, artificial serum never produces this violent reaction; a considerable dose, and also an unusually excitable subject, would be requisite to produce so striking a phenomenon of experimental intoxication caused by salt water. Yet I confess that when I was a young practitioner and had no very positive notions about the effects of the injection of neutral salts, I often gave a patient an excessive quantity and produced an explosion of violent temper, together with a surprising amount of activity.

These facts, and others which I cannot specifically relate here, induced me, some years ago, to make a classification—which is still very summary, but exact

—of the different degrees of cerebral activity and of the corresponding states of the mind.

This synoptical table is reproduced here.

SYNOPTICAL TABLE OF THE DIFFERENT STATES OF CEREBRAL ACTIVITY.

Arterial pressure with the manometer.	Corresponding states of mind.
30, 29	Paroxysm, desire to kill.
28, 27, 26, 25	Great fury, paroxysmal gestures and words, impulse to destroy inanimate objects. Anger.
24, 23, 22	Nervous irritation, tears, aimless gestures and cries, utilized only in expending excess of energy accumulated in nerve centres, wild laughter.
21, 20	Indignation, courage, boastfulness.
19, 18, 17, 16	Noisy gaiety, cries of pleasure. Delight. Smiles.
15, 14	Zone of indifference.
13, 12, 11	Gentleness, modesty. Timidity.
10, 9, 8	Dejection. Fatigue.
7, 6, 5	Indolence.
4, 3, 2, 1	Fear. Terror.
0	Syncope, Unconsciousness.

Be careful not to regard these figures as rigidly, mathematically exact; do not imagine that, invariably, every man whose arterial tension equals twenty-nine or thirty centimeters of mercury must be wanting to kill some one

of his fellow-creatures. This table is only relatively true. The point on which it is nearly scientifically exact is the hierarchy of mental conditions corresponding to degrees, more or less accentuated, of excitement of the brain.

There can be no doubt of the fundamental importance of these ideas from the point of view of therapeutics of the mind,—that practical system of morals for which doctors who treat nervous disease are beginning to hope. Almost all the great modern psychologists from Kant to Taine, including Schopenhauer and Herbert Spencer, have given us to understand more or less plainly that the human mind is imperfectible, and that the hope of making us better is as vain as that "of making cats friendly to mice." [1]

The study of neuropaths, and especially of neurasthenic subjects, distinctly proves that from one day to another, and even from one hour to another, a mind may differ profoundly from itself. Weak and irresolute persons have fits of violence, the nature and mechanism of which are revealed to us by observation: these fits are violent reactions due to some exterior cause of irritation, or to poisons which are fabricated by our fatigued organism. We know that with a certain class of neuropaths, the state of irascibility is at its maximum during the hours when the organism is lowest, on awaking, or before

[1] M. Jules Payot, in his curious and excellent work on the Education of the Will, brings into strong relief the immorality of this doctrine and the no less great immorality of the doctrine which teaches us that to will to do is to be able to do, an assertion constantly disproved by facts: the greater number of immoral persons are precisely those who are affected by paralysis of the will.

meals, and that in many cases an ill-tempered man may be restored to good humour by a few mouthfuls of food.

Now, these variations of temper are only the variations of energy, of muscular tonus: one is sad or timid because one is too weak; angry because one is too strong. These oscillations of our mind are caused by the excitement produced by the contact of our nerves of sensibility, and we can experimentally provoke anger, not only by toxic or chemical agents such as alcohol, caffeine, and strychnine, but also by mere mechanical stimulation applied to the terminations of our sensitive nerves. Overexcite those terminations, in the skin by the hair glove, the hot bath, or the douche; in the muscles by massage; in the intestines by food liable to fermentation; at the surface of the lungs by irritating vapours (oxygen, ozone, nitrous vapours, fluorhydric acid); in the blood vessels by hypodermic or intravenous injections of serum—and you can change a placid into a tumultuous mind. That is because you have rudely increased the muscular energy, the heart's power of contraction, the blood pressure in the arteries, and the activity of nutrition.

The human mind may therefore be modified. If the stimulations of which I have spoken are methodical and of moderate instead of excessive intensity, you may attune the mind to gladness in life and love of work. More than this, just because that neuropathic mind has shown itself ready to form and be enslaved by evil habits, it is apt to contract good ones. Thus the task of the doctor-moralist defines itself—it is to bring the brain up to the standard of moderate energy, and induce it to form the habit of remaining at that point.

So much for neurasthenic subjects. For the hypersthenic, whose natural mobility of mind is much less, it is not so easy a matter. Yet bromide is a powerful medicament, and in these cases its services are indisputable. How many incendiary and murderous epileptics have been subdued to harmlessness by it! We see from our synoptical table that, immediately beneath the zones of anger lies the region of energy, courage, and eagerness for work. This nearness is full of practical instruction, for it is indeed true that if the excess of force in the case of hypersthenic subjects is utilized in some socially beneficent manner, if they are made to walk a great deal or to work hard, if they are turned into soldiers or pioneers, then they become improved, they gain sense. Our foreign legion which does such good service, and suffers so little from either fatigue or microbes, is composed to a large extent of hypersthenic subjects who could not live among other people living in society. I have elsewhere said what a lucky outlet it would be for a country like ours, at a time when there are no more wars in Europe, to have a colonial army made up of *mauvais sujets* and hot-heads.

The more we reflect on it, the more we are led to think that the brain of man is at all points to be compared to a delicate and complex machine, which is fed with sensations and gives back muscular contractions, gestures, and written or spoken language. Like every machine, it furnishes what is called in mechanics "work." Now the immense work performed by the brain during the anger crisis is so much work lost, worse than lost, harmful; apart from the evil it may do to its object, who may be killed by it, it is harmful to the person who

gets into the rage. We are degraded by anger; not only does it humiliate us in the eyes of others, but it leaves us dejected and exhausted.

I acknowledge that this idea would be humiliating if it were not scientifically exact and practically very moral. In fact, it teaches us that in order to moderate the vain and lamentable paroxysms of anger, or to bring them to an end, we must replace them by regular, moderate, and useful work. A lazy man readily gives way to anger because he does not employ his vital energies. Many men have told me, from their own observation, that a long walk will generally dispel their brain storms. In the same way, hard intellectual labour produces a favourable result. Take a writer who has bound himself by the good rule of a daily task at a fixed hour; if he happens, for one reason or another, to miss his work on some occasion, he is quite out of his element, irascible, and ready to give out in ill temper the equivalent of the mental labour which he has not been able to accomplish. The sensation of content and well-earned rest with which we leave off work is, I believe, nothing else than the relief of a force which oppressed us and strove to escape from us that it might have its accomplishment: work is a withdrawal of energy which lets us down from the pitch of excitement to that of calm and gladness.[1]

Yes, it may be answered, but how many we see who have fits of anger just because they are overworked! This is a valid objection, as I acknowledge, in the case of those neurasthenic subjects whose irritability is a function of weakness, and whose malady is a result of over-fatigue.

[1] See synoptical table.

5.

Here, when we are about to consider briefly the conditions of a rational treatment of Anger,[1] I must recur to the fundamental, necessary distinction between hypersthenic and depressed neuropaths—the too weak and the too strong.

Bromide in large doses, and physical exercise to the point of fatigue, should be the basis of the treatment of all those persons in whom anger is connected, not only with epilepsy or similar diseases, but also with excess of vigour, exaggeration of nutrition, or merely alcoholism. It is important to accompany the treatment with an almost exclusively vegetarian diet, to suppress all exciting foods, and all drinks which might be too tonic: patients should drink nothing but water, sufficiently bicarbonated to neutralize the excess of their gastric juice, and to moderate their appetites, or milk, which agrees with strong stomachs and nervous systems of that sort.

On the contrary, in neurasthenic cases, tonic treatment is indicated; but it must not be used without certain precautions. To restore tone to a depressed person with alcohol, for example, is almost inevitably to increase his dyspeptic troubles, and, perhaps, to lead him to contract a deplorable habit. Caffeine and preparations of kola are efficacious for a time and are sometimes valuable helps; but they are not always free from disadvantages. There is

[1] This is not the place to give in detail the prescriptions called for in each of these morbid states; I reserve them for a more technical work. Here I can indicate only the broad lines of treatment, with such precision as is required to make the possibility of an effective cure understood.

a tendency at present to prefer the mechanical stimulants of our sensitive nerves. When methodically employed and in progressive measure, the douche, salt water baths, massage, static electricity, the air-cure at high elevation, or hypodermic injections of serum in small doses as used by Dr. J. Chéron, are indisputably efficacious. They have the priceless advantage over chemical remedies that they do not become a necessity. The cure being once accomplished, the patient gets on easily without them. Owing to them we frequently find it possible to restore failing vital energy, fix it at a given pitch, and make the brain habituate itself to remaining there henceforward.

The practical results given by these simple methods are at present both numerous and certain, sufficiently proved to embolden us to assert in print that there now exists a treatment of anger, a treatment which results in notable amelioration, and even in undoubted cures, when the patient consents to submit blindly to the counsels of his doctor-director. No doubt our present means of acting on the nerve centres are still very imperfect; the time will come when our intervention will be much more efficacious and more sure than we can even conceive at the present moment. But the way has been opened wide, and I have a right to assert that from henceforth the medical cure of the mind, by the action of that which is physical on that which is moral, is not an idle word.

For several years a group of worthy men and eminent magistrates—realizing that the punishment of crime is but a tardy remedy and an insufficient means of social preservation—have been engaged in studying how to rescue childhood when abandoned to evil, the salvation of child culprits.

To these good men I bring help which is not illusory, and I invite them to place the resources of modern hygiene and therapeutics at the service of their great moral work. There are many of those little victims of heredity whom it would be of no avail to place in hospitals, but who, if they were treated medically, with attention, discernment, and method, might be made into men of sound brain and controlled impulses.

Shall I ever find the man or woman who will aid me in this task, one who will do for neuropaths what is done for consumptives, who will found the "Dispensary for Nervous Children," where, by hundreds every day, children with warped brain, the street children of Paris, may come to be cured of their indolence, their fits of anger, and that precocious melancholy of which we see so many heart-rending examples?

What a reply this would be to those who declare that science is the negation of morality, and that to destroy the notion of free will is to abolish all virtue! It is by no longer believing in the integrity of will power, it is by venturing to study the attenuation or paralysis of the will closely, that we have learned how to cure it. Until quite lately when a little child got into fits of passion, it was whipped, or, more mercifully, forced to contemplate the spectacle of its own distorted face in a looking-glass. At least we have now gone a step beyond that!

CHAPTER X.

MODERN MORALS.

A moral system for the third Republic ; Latin and Catholic morals, Anglo-Saxon morals—How medicine leads to morality—Conditions of a modern system of morals—English moralists : Smiles and Sir John Lubbock—French moralists : Guyau and M. Jules Payot—The bases of our moral system : hierarchy of the different degrees of cerebral activity ; the laws of habit—Conclusion.

It is a widespread opinion that, if the third Republic is to come to an end some day, it will be because it has omitted to endow itself with a moral system.

Nothing else has been wanting to the third Republic. It has had great merchants, able financiers, more than one statesman, a dazzling array of novelists, orators sonorous or subtle ; and, in the sciences, Berthelot and Pasteur, Janssen, Marcel Desprez ; in philosophy, Renan, Taine, Ribot, M. Tiard, M. Jules Soury, and artists innumerable, many of whom are true sons of the modern tendencies, from Chéret, the illustrator of the streets, to Dalou, the sculptor of the people, Forain who hits *les Repus* so hard, and Raffaelli, who ennobles the navvies and makes poetry out of the slums.

But in vain do we look for modern morality, for a morality suitable to actual needs. The third Republic, an epoch of dilettanteism and the dread of ridicule, while

in reality it has not been more immoral than the preceding régimes, has neglected ethics.

There has, however, been a great deal of talk on the subject. Novels especially are crammed with ethics, and no one writes a book which is not a chapter in the pathology of mind, often well done, sometimes masterly. But all this psychology leads to no practical solution. Like those doctors—happily there are few of them left—who are nterested in nothing but the description of the malady, and discovery of symptoms, and care very little for cures, the moralists of to-day are only anxious to show how profound is their knowledge of the human heart; and their books, which reveal to us how ill we are, leave us there, entirely forgetting to tell us whether any means of our getting out of the scrape exists.

It is a doctor's professional duty never to reveal the gravity of a patient's condition to him, unless it be imperatively necessary in order to constrain him to get well. But what should we think of the doctor who should say: "You have a cancer; now, cancer is incurable: no human aid can save you. Have the goodness only to remark how sensitive my feelings are, for I am full of pity for the dreadful fate that awaits you"?

This is somewhat of a case in point.

Some modern writers have made up their minds so thoroughly upon the matter of this literary lacune that their works proclaim return to the Catholic faith as a necessity. Is not every one who has meditated upon the torments which our own passions inflict upon us tempted to turn his eyes and stretch his arms towards that ancient refuge which has so often made good its claims?

One day, some years ago, when talking with one of the master-novelists of the jealousy of love and the means of curing it, I ventured to narrate how I had been enabled to make more than medical examination of that cruel malady, and related two cases which had been completely cured by hygienic means. Therapeutics of the mind, I said, is not an empty word, and the doctor may be of great utility in cases of moral distress.

He interrupted me, and laying a hand on my shoulder said,—

"The hygiene of the soul has had a long existence! It is the Catholic religion, in which we must believe and which we must practise. Rest assured of this, my friend, confession and prayer only can avail to save us from such torments."

The authority of his words and gesture silenced me. I felt that it would be a difficult task to make my ideas clear and induce him to share my hopes. Nevertheless I cherish the secret hope that one day or another the doctor will be called upon, if not to replace, at least usefully to supplement the priest, in a very great number of cases within the domain of effective, practical morals. I must explain how, and within what limits.

It is important that I should make myself thoroughly understood, and I would not for anything in the world be supposed to seek a quarrel with or make war upon religion. In the second chapter of this book, I have said plainly that I considered the sudden secularization of our primary schools a hasty and imprudent act, and I believe in the efficacy of belief in a just God and hope in a future life for the culture of simple minds. There is no system

of morals more thorough or more profoundly human than Catholic morality, and I find it difficult to conceive how any other ventures to attempt rivalry with one which has the justice of God for its basis, and eternity for its sanction.

But it is also my belief that the pure and gentle moral system of the Church is not without drawbacks in the present age.

In the first place, it is undeniable that it bears the impress of its founders in the dawn of Christianity, who were poor fishermen from the banks of the Jordan and the lake of Tiberias, and slaves of Rome,[1] whose life here below could be nothing but a succession of hardships and humiliations. They must necessarily have conceived a system of morality all compact of humility and renunciation, preaching the turning of one cheek after the other to the unresented blow, the disdain of comfort, wealth, and fame, the nothingness of human knowledge, the cultus of death, the ardent hope of another life. The first Christians were lowliest amid the society of which they formed a part; they had, like others, their vehement aspirations towards happiness, but they could hope for realization of them only in a life beyond the earth. Here below is exile, the true fatherland is elsewhere. Hence the necessary, inevitable conclusion that on this earth it is good to suffer, to endure innumerable privations, to live in poverty, to make no effort to win wealth or fame, or the love and admiration of women, and to resign one's self to pain, or better still, to cherish it in order to offer it up to God, to whom it is acceptable.

[1] See Renan's "Marc-Aurèle" (C. Lévy).

At the present day—notwithstanding certain slight modifications, which the centuries have imposed upon it —the Catholic Latin system of morality has retained those tendencies from the beginning. It remains the advocate of community, proscribes individualism, rebukes pride, mocks at ambition, is indulgent to indolence, counsels men to be of non-inquiring mind. Providence having undertaken to direct the small incidents of human existence day by day, and all our strength coming to us from grace, see how little individual effort signifies, and how much better it is for us just to let ourselves live resignedly, while waiting for death the liberator.

Now let us place the Protestant and Anglo-Saxon morality in opposition to this.

It does not impose a like philosophy on all; it does not seek to produce a level by unity of belief; it leaves each individual's choice of doctrine free; it makes less of the community for the benefit of the individual. And see what health and conquering strength it gives to the English people, for example, and what superiority in the struggle of races for the possession of the globe it confers upon them. It is true the life to come and the beatitude promised to the righteous are discussed in sermons by preachers and books by moralists, but we feel that their chief concern is to develop the inbred qualities of the race, the cool audacity, the obstinate energy, the love of the good things of the world. What they promise to those who observe the commandments is a comfortable life here below, with heaven as a happy continuation of it.

This parallel between the two systems of morality has never been so important to consider as at the present

moment. It is only on condition of renouncing our old theories of community and resignation, it is by thoroughly developing in our children taste for personal enterprise and ambition to lead, that we shall be able to contend against collectivism within and without, against the wonderful power of expansion, and the implacable utilitarianism of the Germanic or Anglo-Saxon races, which otherwise will shortly reduce our commerce to nothing, take our colonies from us, and ruin our credit. For this, the war of to-morrow, the old Latin education prepares us badly.

But the Catholic morality has also the defect of not being universal. Religion is efficacious for the truly "faithful" only, for "practising" Christians; and it is precisely the others—those who are rebels against it, those whom it has been unable to retain, and who are left to their own resources who urgently need help.

Of course, if I demand a moral system, it is for those who are sick and not for those who are already cured. The lukewarm, the undecided, the indifferent belong to me. And if, at the beginning of this chapter, I have pronounced the name of the third Republic, it is because the Republic is especially bound to organize some earthly compensations for those who have lost the hope of eternal felicity.

Since, then, in this time of trouble, the creeds do not extend their arms widely enough; since, besides, a man is a bad judge of his own actions, and often unfit to guide himself; since nobody speaks, or offers to come efficiently to the relief of all those unhappy beings who deserve something better than their fate, Science, in order to

help the sinking ones and try to utilize this lost energy, these wasted forces, puts in a claim to be heard, very modestly, with full knowledge of its weakness, and its slender means of touching the moral side of humanity, and excuses its boldness by an argument which has some value. "I have something to give you," says Science, "it has narrow limits, and it is only relative, but nevertheless it *is* something; and as, up to yesterday, you had nothing, it might as well be tried in any case!"

Our ambition is very modest. We call our morality "modern," it is then far from resting upon eternal principles. Its characteristic will be its closest possible adaptation to the interests and the needs of the present time.

For the moment, at least, our morality will not have, will not desire to have, the fulness of a system of social morals. It is, on the contrary, absolutely individual. A patient who suffers and a doctor who undertakes his case, these are its limits, and everything will occur as it occurs in the domain of bodily medicine. If the case gives him material for interesting observations, the doctor will be entitled to publish them in a book, on the sole condition that he strictly observes professional secrecy.

In the preceding chapters of this work I have given examples of the observations which I have been enabled to make since I began to practise the Medicine of the Mind. A great number of such cases of sloth, morbid affections, melancholy, and anger, relieved or cured in the simplest, most medical manner by the action of the physical upon the moral, shall be published in detail in due time.

No more was needed to suggest the idea of a new morality, of a science hitherto unexplored, the inevitable outcome of medical knowledge.

That new morality is hygienic, science raising itself to the dignity of a practical philosophy; it is therapeutics dealing with the temporary weakness or more serious paralysis of our will, the great regulator of the human machine; disorder in love, disorder in work, insensate anger or vain sadness, these are the sins of enfeebled will. If the hygiene which we desire succeeds in teaching men to live worthily, and to work well, then it is in truth a sound morality, for except loving and working, what is there of serious import here below?

Besides, I am not an inventor. I was boastful just now, in speaking of a new morality and an unexplored science. Goethe subjected his will to the severest hygienic rule,[1] to say nothing of *Mens sana*, &c., being as old as the world. Has not the Church itself had continual recourse to physical methods of getting at the moral nature?

When Charcot isolated an hysterical patient, his object was simply to allow her to lay hold again upon her will in the meditative quiet of monotonous life. That great man, with his air of disdain of therapeutics and his brusque manner as a doctor, was nevertheless the inventor of two or three very good modes of psycho-therapia. We analyzed many times the action of tonics and soothing medicines upon the mind of man. And thus it is that every doctor who is a specialist in neurology, on condition

[1] See Goethe's *Conversations with Eckermann.*

that he is kind-hearted and intelligent, may become in a day a competent moralist in my sense of that word.

The chief difficulty does not arise from the lack of doctors so much as from the opposition of patients. "I like my ailment, I choose to suffer from it," is an answer which our proselytes will frequently have to encounter.

One condition seems to be indispensable to the chances of success for our modern moral system; the patient must be endowed with sufficient sensitiveness to revolt against the disorder of his life, he must suffer, he must feel that he is sick in order to wish for cure. Fortunately, the doctor's authority is greater than it is supposed to be; fortunately also, many men entertain a very real, a very sincere desire to improve. We can do all things with these. On the other hand, we shall be more frequently disarmed when women are in question. This is because woman rarely feels the humble desire to do better. Almost always her tendency is to think herself perfect, and she confines herself to the repetition *ne varietur* of her modes of temptation. Setting apart a few noble exceptions which prove the rule, it does not appear that woman has ever taken part in the progress of the human mind.

An old practitioner of consummate experience one day propounded the following: "When female nervous patients are in question," he said, "the woman must either be very much afraid of her doctor, or she must admire him greatly, otherwise she does not obey." There is too much generalization and exaggeration in this remark, but there is a great deal of truth in it also.

Let us not encumber ourselves with antique formulas in

renovating our moral system. We may leave the books of our forefathers unread, and I would have it forgotten that our school teaching laid down for us our duties towards ourselves, towards our fellowmen, and towards the animal world. The truth is, as Maurice Barrès admirably puts it, there can be no duties except towards ourselves. From the day when we shall have effectively elevated ourselves, we shall no longer desire to injure others uselessly, we shall no longer be wantonly malicious to brutes or perfidious to men.

That we may not embrace too much at once [1] let us be satisfied with the moderate aim I have already defined, that of cultivating the human will assiduously in the direction of loving well, working well, and always utilizing its force. There is enough in this to occupy us sufficiently.

If we had to choose an ally among the old moralists, we should have recourse to the utilitarianism of John Stuart Mill. Among those of the actual period we shall find few sponsors. I propose, however, a pause for a brief consideration of those English writers who give us little moral prescriptions [2] for "felicity puerile and proper," to quote the saying of a clever woman—whose works, translated into many languages go into innumerable editions in London. I have only a word to say concerning Smiles, whose maxims and quotations upon character, work, self-government, courage, and politeness are disconcertingly puerile, when one thinks of his popularity in English-speaking countries. He actually set forth as an example

[1] "Qui trop embrasse mal étreint" (French proverb).

[2] There could not be any question here of those great theorists of the idea of morality, Spencer, Pollock, Leslie Stephen, Clifford, Miss Simcox, &c.

Lord Palmerston, who, notwithstanding his great age, laughed at fatigue and kept the infirmities of old age at a distance by the force of his will. The imitation of that personage is hardly within the competence of wavering minds, which are precisely those in need of a moral system!

Sir John Lubbock is a writer of very different calibre. To analyze his writings is to give a general idea of the familiar morality, without philosophic pretensions, and practical because everybody can understand it, which the English like so much.

In France we have nothing analogous to Sir John Lubbock's works. The writer teaches happiness by persuasion and optimism by suggestion. They are pleasing in that they bear witness to a fervent desire to see mankind less unhappy; interesting in that they strive to institute a system of morals really suitable to the necessities of this age, and lastly, insomuch as they show us once more how widely the English mind differs from ours.

With us, a philosopher writes books for his own renown. Sir John Lubbock thinks of himself not at all; whether he is regarded as a profound thinker or a master of style gives him little concern. In short, simple, clear words, he sends ideas of practical morals (which are only his by selection, for the greater part of his volumes consists of quotations) among the people. Far from him is the idea of shining on his own account; his sole purpose is to be useful, to do good, to teach men to enjoy life, to free us from all those troubles which we make for ouselves, to oblige us take cognizance of the great sum of joys which we neglect, the marvels of art, the splendours of nature,

the peace that may be procured by the banishment of passions, the sense of duty fulfilled, the love of home, the pleasure to be derived from a brief meal, a little exercise in the open air,—for all this comes into his moral system.

At every page the English reader, whose mind is more respectful than critical, must say to himself, "How true this is! Why had I not thought of that happy solution?"

There is nothing Utopian in "The Use of Life." It makes us no formal promise of eternal happiness, and carefully avoids regarding the earth as a vale of tears and as a place of exile. Although it is penetrated through and through by evangelical doctrine, this book seems in reality to tell us that we may find paradise in this life, and that we must seek above all that "peace on earth" which was promised to men of good will.

"The Use of Life" is a charming book on the whole, and might have been altogether admirable if it had spoken of human suffering with a little more emotion. It eludes pain too much, that terrible instructor of our kind which so often appears to us aimless, without appreciable reason, which strikes the best and spares the worst, but to which we owe nevertheless the little worth there is in us!

The works of Sir John Lubbock, considered all round, are of the best, the purest, and the most practical morality. But precisely because they make it more evident than others that they propose to be useful, to render real service, we cannot help asking while reading them, whether in reality the best of books can affect the minds of men greatly and directly. Can you, by the

soundest precepts, the wisest counsel, induce a man to be less prodigal, choleric, or dissipated, less impatient or more diligent, ready to take with a braver heart the annoyances or the trials from which not one of our days is really exempt ?

A remark of Ruskin's suggests reflection on this matter. He asks why people talk of bad weather ; no weather is bad, according to him : sunshine is delicious, rain is refreshing, wind invigorates us, and snow dazzles us by its whiteness. Such good humour in the face of inclement facts is touching, and no doubt this very courteous fashion of receiving the award of Destiny ought to be preached to mankind. But who are they who adopt it ? Well-balanced healthy people, who feel nothing at all when the barometer varies, and these have no need of a " morality." Reflect a little upon the fact that for some persons there is bad weather, that cold does harm to those who cough, that rheumatic patients suffer severely from damp, and that the approach of storm painfully affects the innumerable army of the nervous. I believe firmly that our vices develop themselves only in unhealthy soil, that the only way to cure the mind is to treat the brain, that henceforth the moralist is inseparable from the doctor, and that individual treatment, that of pupil by master, of a weak friend by a strong, of neuropath by physician, may produce solid results, may lead to real amelioration of sick minds.

I have pondered long over all this, and I remain convinced that the most eloquent of books can only procure momentary good dispositions for us. For the realizing of morality, for making it pass from the state of project to

the effective state, I am persuaded that a machinist of the cerebral machine is necessary, one who knows how to stimulate its indolence, to slacken its speed, and, by a skilful turn of the handle, to give the mind of a patient just that degree of impulse which is necessary to the work that he proposes to himself, and to procure the satisfaction of it. Give tone to the organization, repair nutrition, give strength to the brain, and temper to the will; after this is done, let the patient read the works of Sir John Lubbock or some other optimist moralist: then only will they be profitable to him.

The man of whom it may be said that he really renovated and modernized the idea of morality was a Frenchman, who died at thirty-three years of age, after he had written in the fine style of a poet-metaphysician that admirable work which he called *Esquisse d'une morale sans obligation ni sanction*. If Guyau had but lived, he must have become one of the masters of modern thought, and I do not think it will be possible henceforth to treat of ethics without recalling his name.

Guyau maintained the doctrine that the true wisdom of man is to be found in the extreme development of his being, in the full expression of the *Ego*. He seems to have taken as a motto the old adage, *Bonum est diffusum sui*, Good is the dilatation of one's self; intense life in fullest light, it is strength in action. His loftily abstract work divines the path on which we have entered and has a vague foreknowledge of the practical self-moralization which the physician believes he can place henceforth at the service of morality. My doctrine, conceived at a period when I knew nothing whatever of

Guyau's work—exists in germ in the thought of this precursor. That which was in him only aspiration, only magnificent metaphysical reverie, tends to become, at the present hour, accomplished fact, practical reality. Guyau desired the complete development of the human vitality, its full flowering; we supply with precision the scientific revelation of the sources of our energy and the method of strengthening feeble minds, in order that life may be lived with intensity.

This is actually the logical development of his thought, the accomplishment of his desire. In thus rendering him justice, I am deeply moved by tenderness for this elder brother, this master cut off so early; as one lays flowers on a beloved grave, I offer my tentative work to his memory.

Our morality, after the manner of his own, rests solely upon the instinct of preservation; its recompense is the joy of living, and peace on earth to men of good will; its chastisement is the sense of decline and decay, and the fatigue of disorder, the continuity of distress. But as argument would be insufficient for cowardly minds, we will also appeal to the most indelible, the most powerful, the most animal, and the purest of feelings, to paternal love. And we shall say: "By exhausting your strength, by wasting your energies, you do harm to those who are to be your offspring, you make them degenerate and impose on them a life of misery, of torment, or of shame. This is how they may be preserved." Then the idea of heredity will lose its horror, and, for the second time in this world, the hope of salvation will be substituted for the too discouraging idea of original fatality.

It would be unjust to omit in this place mention of the name of M. Jules Payot, whose excellent book *L'Education de la Volonté* had such well-merited success some time ago. Nowhere have I seen the question of free will and determination put with greater clearness. The young writer, without relinquishing the most modern conquests of psychology, shows us that the human mind is not immutable, as the philosophers of the middle of this century taught, Taine notably, but that it is susceptible of progressive evolution, of slow modification. Doubtless it is not sufficient for us to will in order to be able to do, but by ingenious ways and patient devices, we may bring our minds into a condition of less sloth, higher energy, and more free exercise of will. And that doctrine leads to a series of practical counsels which are for the most part good to follow. Young men inclined to idleness, students especially, may study this work with real advantage.

2.

But a gulf lies between us and almost all these moralists. They are philosophers and we are physicians. They offer counsels which are the issue of a doctrine: we practise a treatment which experience has led us to institute. Our only masters are Charcot, Pitres, his collaborator in the study of cerebral localizations in man; Jules Soury, the great historian of the functions of the brain; Lange, the initiator of all modern psychologists in that which concerns the affective states; lastly, Jules Chéron, whose essays on the laws of hypodermy, on injections of serum, and the sources of human energy, have led me to study

the modifications of the mind under the influence of the mechanical stimulation of our nervous centres.[1]

And immediately, a truth of vital importance impresses itself upon us. States of mind, affective or intellectual phenomena which until now, passed for *qualitative*, have become *quantitative*, and on the spot have allowed us to divine their nature.

The fact of being sad, slothful, cheerful or choleric, has hitherto been unintelligible, irreducible. It was referred to certain inherited or acquired qualities of the mind, but now we understand that different degrees of cerebral excitement were really in question. For an explanation of these degrees the reader is referred to the chapters which treat of dejection and anger respectively.

Close study of neurasthenic sufferers has shown us that over-exertion, physical, or intellectual, or of the passions, has reduced them to a state of mental depression which ensures, according to its degree of intensity, humility, fear, sadness, powerlessness to work for any prolonged time, idleness, or, if you prefer it, the fatigue which ensues speedily upon voluntary attention. All this—Lange, James, Ribot, and G. Dumas think, with us, is merely the mental reflection of a vague consciousness of bodily exhaustion, of lack of activity and nutrition. Our body weighs upon us, we can hardly carry its burden, our general activity is below the normal, we feel that we are miserable creatures,

[1] M. Pierre Janet, owing to suggestion, used as he knows how to use it, has to his credit a great number of cures of hysterical, impulsive, and dipsomaniac patients. These cures are simply moral therapeutics in action. M. P. Janet's essays on *L'Automatisme psychologique* and *L'Etat mental des hystériques* have led him also to a psychological hygiene, to a practical system of morality, which gives results in the sphere of its exercise not to be challenged.

we begin dimly to recognize our unfitness for the perpetual struggle of humanity; thus it is that we become indolent, timid, and melancholy. But it is certain that by some one or other of the mechanical means enumerated more than once in the course of this work,[1] you can stimulate the nervous centres of a sufferer from exhaustion, and that you can for some hours—on condition that his brain has not yielded too much to supineness, on condition that it has not concentrated itself upon a fixed idea for too long—modify the mental condition, transform a melancholy, timid, and meek sufferer into a self-asserting, active man, full of life, it may be boastful and testy, abounding in words and gestures, if you give him more strength than he knows how to utilize. At the present time our experiences entitle us to affirm as a scientific fact that a purely mechanical excitement of our brain suffices to change, mechanically, but very promptly, hypotone into hypertone, weakness into muscular and moral force, and even into nerve crises, tears, anger, &c.

Our morality does not then reside in the qualitative variations of our mind, but in the quantitative variations of our energy, of our ardour in living. Clinical and experimental medicine has revealed this fundamental truth to us, and it is the treatment of neurasthenic patients by hypodermic injections of salt water that has taught us to understand the nature of the emotions, by handing over to us the key of this magnificent problem of cerebral mechanism.

How is it possible, after this, to maintain that the physical depends upon the moral, and that in order to

[1] See Chapter V.—Human Fatigue and Human Strength.

ameliorate the body, the mind must be treated first? Is it not evident that the one and the other are compound, that the manifestation of the one never takes place without participation of the other, that Monism is evident here as it is everywhere, and that of the soul we can scientifically know nothing except the functions of the brain, the rest being the business of theology?

No doubt this pulls down the pride of those who still would fain believe that man is the sole object of creation, that our poor little earth is the centre of the world, and that the immense muster of the stars is only an imposing spectacle, expressly created to constrain us to praise God! These thinkers will not consent to admit that their moral condition varies with the changes of the tone of their nerves under the influence of external *stimuli*, and they will obstinately deny that their immortal part can be subjected to modifications by a few drops of salt water. But others will bow before the truth of the fact, and, far from resenting it, will rejoice to know that man is less helpless against himself than he was believed to be.

Not for the first time do science and reflection urge modesty upon us, and sternly teach us the humility of our condition as miserable insects crawling upon a mud heap. And, after all, what does it matter that we are only a mean machine, moved by sensations sometimes hardly conscious? What does it matter that our mind, like the mercury in the tube of a manometer, oscillates along its course from feebleness and fear to pride or frenzy, passing by pleasure on its way? What does it matter that free will is but a vanished delusion? Of what importance is our misery, if we know it, if we are aware

of its *raison d'être*, if we learn from ourselves alone how to remedy it? Anatole France has said: "The admirable fact is not that the field of the stars is so vast, it is that man has measured it." That which also is admirable is his perpetual effort, under the lash of suffering, to become better, to subdue the fierce and impulsive animal in himself, to guess the enigma of his own energy, of his moderating force, to contract the vast field of his pain just a little. Poor, valiant slave, what obstacles, springing up newly every day, has he had to conquer! How many still rise up before him!

It is here that the naturalist-philosopher and the theologian make an approach to each other. Up to a certain point their intentions are in agreement, and each has means, efficacious on the whole, and which may be completed by the means of the other, at his command. Why should not the priest entrust such and such a penitent of feeble mind to the doctor, so that he may be restored to strength and placed in better condition to conform to the law? I know a writer whose philosophic works are far from being orthodox, and who has placed his sons with the Pères Maristes, believing that in the future the youth will have leisure to think freely. Who can tell whether the force of things will not lead the Catholic Church—which cannot but remain inflexible in the matter of dogma—to advise an education less communistic, or to preach individualist doctrine? This must be so, if the Catholic Church means to strive for the maintenance of society as it is, and to use its strength in building a dyke against the threatening collectivism which was logically demanded by the first ages of Christianity.

But let us return to the earth, which is our modest sphere, and conclude the enumeration of the bases of our system of morals.

We have seen that it consists essentially in the employment of certain processes of mechanical stimulation of the nervous system, which enables us to put the mind of a man into a given condition of vigour.

But, it will be said, convinced as we may be of the possibility of bringing a mind up to a certain degree of vital activity, we see no more in that than a transitory, momentary effect, and only lasting cures can count as good and valid.

Well, it is thus that we obtain them. While the chemical agents, alcohol and morphine, become necessary to those who have used them for any length of time, and literally reduce to slavery those who have had recourse to their aid, the mechanical stimulants of the nervous system, massage, the air cure, the douche, the hypodermic injection of salt water, may be discarded without risk after the lapse of a certain period. We are not forming the habit of a drug, but of the degree of vitality to which it used to raise us. Thus the building now stands, though its props be withdrawn.

We had long ago obtained this acquired stability of the nervous system without accounting for it, when, one day, we learned from M. François Franck, of the Collège de France, a little fact of experiment which is quite simple and truly admirable in that it reveals the signification of habit, of that all-powerful need of beginning again which is at the bottom of human nature.

The experiment is as follows. First, cover your right

hand with the apparatus of MM. Hallion and Comte, which enables us to measure the volumetric variations of the fingers, their swelling or their retractation under the influence of the dilatation or the restriction of the small arteries. Then apply any sensitive stimulation to that hand, for example, a sponge steeped in cold water, and the graphic will immediately indicate upon the registering apparatus a contraction of the vessels, a diminution of the volume of the hand, followed by a progressive return to the normal. Leaving things so without interfering anew, continue to observe the evolution of the graphic: after a very short time the phenomenon will reproduce itself spontaneously, the vessels will become contracted, the hand will contract upon itself almost as strongly as the first time. This will occur five or six times over; the phenomenon becoming fainter, but repeating itself without renewal of the primary stimulation.

This experiment, which I consider of fundamental importance, ought, I think, to be borne in mind by all who care to study the laws of habit. M. François Franck, to whom the study of the physiology of the nervous system owes so many important discoveries, enables us to perceive the meaning of that word "habit," mysterious enough as yet, we must admit. By his aid we lay hold of the phenomenon which regulates almost all the actions of our life, so that it has justly been called second nature. It is that second nature which we succeed in imparting to our nervous patients who are a prey to dejection, sloth, anger, or morbid affections. And our treatment may be summed up in one word,—recourse for purposes of cure to the very sources of human energy, to the sensitive peripheries

of the human economy, and the methodical progressive stimulation of them, so as to make the nervous cell resume *the habit of the normal tone.* In this there is only a problem of biological mechanism, and after all a very simple one. In fact, this moral method is well and truly realizable in a very great number of cases.

3.

We have come to the end of our task. The retrospective glance, always a little sad, which has to be turned at the last moment upon this long series of facts and reflections, does not bring discouragement. Modest as is the personality of the author, he has put into this book the sum of nearly six years of medical observations, physiological experiences, personal meditations, and documents accumulated with one set purpose.

Starting from the researches of Charcot and his pupils into hysteria and hypnotism, we have been led to study in their turn the relations of medical science with justice, with literature, and with art. Then, we have endeavoured to form an idea, at once very simple and sufficiently precise, of the functions of the brain of man; we have acquired a knowledge of the topography of the cerebral cortex in order to penetrate into the essential part of the doctrine of localizations, and to consider our nervous centres as organs of association of recent or resuscitated images, which is indeed the definition of intelligence.

And then, entering upon the study of human fatigue and strength, of nervous exhaustion and of tone, we have sought to account for the spontaneous oscillations of vitality among neurasthenic sufferers in particular, to

detect their mechanism and to reproduce them experimentally: in this we have succeeded easily. Arguments drawn from study of causes, from analysis of symptoms and effects of treatment have revealed to us the nature of sloth, melancholy, anger, and morbid affection. Hence come rational therapeutics of the maladies of the mind, which a great number of observations make us regard as efficacious in fact. In spite of all the declarations of failure and bankruptcy with which the scientific method has been overwhelmed, we have seen medical psychology and cerebral physiology lead to a moral system, still in its infancy, but indisputably with a future. Modest though the means at our disposal of modifying human energy at present may be, they give striking results: the natural evolution of things cannot but lead us farther on. Now that the path is open, there is no real reason why psychological therapeutics should not make the same progress that we admire so much when antiseptic surgery or vaccine microbes are in question.

As a matter of fact, medicine for the mind has partially existed for ages; all those who have endeavoured to relieve the nervous have practised it, often unknown to themselves. The Church, with its rules of life, its abstinence, and its food regimen—largely imitated from the principles of the Thora—and its monasteries and convents, of which our hydropathic establishments and other institutions for the mentally afflicted are but a moderated form, has ever been a great hygienist.

But now we have a more formal science, a science duly constituted, at whose first principles only this

work glances. At a later date, I hope, studies more detailed may come, with observations and proofs in plenty. Let us content ourselves for the moment with helping to lay the foundations of an edifice which it will take centuries to build, and which will never be complete.

May this present book induce the right-minded to recognize some practical utility, some effective merits in science, and to allot some dignity to the medical profession, which has done in a few years all that we have just contemplated for the enfranchisement of our minds and the diminution of human suffering. May it also communicate to those among my brother-doctors who shall be pleased to read it, a little enthusiasm for their magnificent mission, and give them, together with the consciousness of their power, a profound sense of the greatness of the task of striving to help latent humanity in its imperceptible and yet perpetual evolution towards that minimum of pain, deformity, and disorder towards which the Universe appears to tend.

THE END.

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